



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

SEP 26 2019 CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Isaiah Lewis
Haverhill Water Pollution Abatement Facility
40 South Porter Street
Bradford, MA 01835

Re: NPDES Permit No. MA0101621
For the Haverhill Water Pollution Abatement Facility

Dear Mr. Lewis:

Enclosed is your final National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Clean Water Act (the "Federal Act"), as amended, and the Massachusetts Clean Water Act the (State Act"), M.G.L. Chap. 21 §§26-53, as amended. Also enclosed is a copy of the Massachusetts State Water Quality Certification for your final permit, the EPA and MassDEP response to comments received on the Draft Permit, Part II Standard Conditions, and information on contesting your NPDES permit in MA.

In Massachusetts, NPDES permits typically are issued jointly by EPA and MassDEP. When no comments are received during the public comment period, the permit becomes effective immediately upon issuance. When comments are received, your NPDES permit will become effective on the date specified in the permit unless you file a timely petition for review or request for an adjudicatory hearing.

To contest the NPDES permit with EPA, your petition to the EAB must be submitted in accordance with 40 C.F.R. § 124.19 and 40 C.F.R. § 124.20. Information concerning electronic filing procedures as well as procedural and substantive requirements applicable to NPDES permit appeals is available on the EPA EAB website (<http://www.epa.gov/eab>).

To contest the NPDES permit with MassDEP, your request for an adjudicatory hearing must be made to MassDEP – Office of Appeals and Dispute Resolution (OADR) as outlined in the enclosure and in accordance with the regulations for Adjudicatory Proceedings, 310 CMR 1.00. More information is available on the MassDEP - OADR website at: <http://www.mass.gov/eea/agencies/massdep/service/enforcement/appeals.html>. If an appeal is made to the EPA EAB and not to the MassDEP - OADR, the MassDEP permit will become effective on the date specified in the permit.

We appreciate your cooperation throughout the development of this permit. If you have any questions concerning the permit, feel free to contact Evan Lewis at (617) 918-1543.

Sincerely,



Thelma Murphy, Chief
Water Permits Branch

Enclosures: Final Permit
MA State Water Quality Certification
Response to Comments
Part II Standard Conditions
Information for Filing an Adjudicatory Hearing Request with the Commonwealth
of Massachusetts Department of Environmental Protection

cc: MassDEP, Division of Watershed Management
All Interested Parties



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

September 24, 2019

Thelma Murphy, Water Permit Branch Chief
USEPA – New England
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

**Re: Water Quality Certification
NPDES Permit MA0101621
City of Haverhill Water Pollution Abatement Facility, 40 South Porter Street,
Bradford**

Dear Ms. Murphy:

Your office has requested that Massachusetts Department of Environmental Protection (“MassDEP”) issue a water quality certification pursuant to Section 401(a) of the Federal Clean Water Act (the “Act”) and 40 CFR 124.53 for the above referenced NPDES permit.

MassDEP has reviewed the proposed permit and has determined that the conditions of the permit will achieve compliance with sections 208(e), 301, 302, 303, 306, and 307 of the Federal Act, and with the provisions of the Massachusetts Clean Waters Act, M.G.L. c. 21, ss. 26-53, and regulations promulgated thereunder. The permit conditions are sufficient to comply with the antidegradation provisions of the Massachusetts Surface Water Quality Standards [314 CMR 4.04] and the policy [October 21, 2009] implementing those provisions.

MassDEP hereby certifies the referenced permit.

Sincerely,

Lealdon Langley, Director
Division of Watershed Management
Bureau of Water Resources

ecc: Evan Lewis, US EPA
Jennifer Wood, MassDEP

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

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**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

City of Haverhill, Massachusetts

is authorized to discharge from the facility located at

**City of Haverhill
Water Pollution Abatement Facility
40 South Porter Street
Bradford, MA 01835**

And

Combined Sewer Overflow (CSO) discharges at 13 locations

to receiving water named

**Merrimack River, Little River
Merrimack Watershed**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

The Town of Groveland is a co-permittee for Part B, Unauthorized Discharges; Part C, Operation and Maintenance of the Sewer System, which include conditions regarding the operation and maintenance of the collection system owned and operated by the Town; and Part D, Alternate Power Source.

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the terms and conditions of Part B, Part C and Part D of this permit. The Permittee and the co-permittee are severally liable under Part B, Part C and Part D for their own activities and required reporting with respect to the portions of the collection system that they own or operate. They are not liable for violations of Part B, Part C and Part D committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting that is required of other Permittees under Part B, Part C and Part D. The responsible Town department is:

**Town of Groveland
Town Hall
183 Main Street
Groveland, MA 01834**

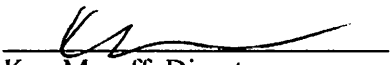
This permit shall become effective on the first day of the calendar month immediately following 60 days after signature.

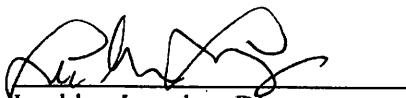
This permit expires at midnight, five years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on December 7, 2005.

This permit consists of the cover pages, **Part I, Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011), **Attachment B** (Reassessment of Technically Based Industrial Discharge Limits), **Attachment C** (Industrial Pretreatment Program Annual Report Requirements), and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this 25th day of September, 2019


Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA


Lealdon Langley, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge treated effluent through Outfall Serial Number 046 to the Merrimack River. The discharge shall be limited and monitored as specified below; the receiving water and the influent shall be monitored as specified below.

| Effluent Characteristic | Effluent Limitation | | | Monitoring Requirements ^{1,2,3} | |
|---|--------------------------------|-------------------------|------------------------------|--|--------------------------|
| | Average Monthly | Average Weekly | Maximum Daily | Measurement Frequency | Sample Type ⁴ |
| Effluent Flow ⁵ | 18.1 MGD Rolling Average | --- | Report MGD | Continuous | Recorder |
| Effluent Flow ⁵ | Report MGD | --- | --- | Continuous | Recorder |
| BOD ₅ | 30 mg/L 4,500 lb/day | 45 mg/L 6,755 lb/day | Report mg/L Report lb/day | 5/week | Composite |
| BOD ₅ Removal ⁶ | ≥ 85 % | --- | --- | --- | --- |
| TSS | 30 mg/L 4,529 lb/day | 45 mg/L 6,793 lb/day | Report mg/L Report lb/day | 5/week | Composite |
| TSS Removal ⁶ | ≥ 85 % | --- | --- | --- | --- |
| pH Range ⁷ | 6.5 - 8.5 S.U. | | | 1/day | Grab |
| Total Residual Chlorine ^{8,9} | 355 µg/L | --- | 614 µg/L | 3/day | Grab |
| <i>Enterococci</i> ^{8,9} | 35 cfu/100 mL | --- | 276 cfu/100 mL | 1/month | Grab |
| Fecal Coliform ^{8,9} | 88 MPN/100 mL | --- | 260 MPN/100 mL | 5/week | Grab |
| Total Phosphorus (April 1 – October 31) | Report mg/L | --- | Report mg/L | 1/month | Composite |
| Total Nitrogen ¹¹ (April 1 – October 31) (November 1 – March 31) | Report mg/L Report mg/L | --- --- | Report mg/L --- | 1/week 1/month | Composite Composite |

| Effluent Characteristic | Effluent Limitation | | | Monitoring Requirements ^{1,2,3} | |
|--|----------------------------|----------------|--------------------|--|--------------------------|
| | Average Monthly | Average Weekly | Maximum Daily | Measurement Frequency | Sample Type ⁴ |
| Total Kjeldahl Nitrogen ¹¹ (April 1 – October 31) (November 1 – March 31) | Report mg/L Report mg/L | --- --- | Report mg/L --- | 1/week 1/month | Composite Composite |
| Total Nitrate+Nitrite ¹¹ (April 1 – October 31) (November 1 – March 31) | Report mg/L Report mg/L | --- --- | Report mg/L --- | 1/week 1/month | Composite Composite |
| Whole Effluent Toxicity (WET) Testing^{12,13} | | | | | |
| LC ₅₀ | --- | --- | ≥ 100 % | 1/quarter | Composite |
| Hardness | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Organic Carbon | --- | --- | Report mg/L | 1/quarter | Composite |
| Ammonia Nitrogen | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Aluminum | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Cadmium | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Copper | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Nickel | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Lead | --- | --- | Report mg/L | 1/quarter | Composite |
| Total Zinc | --- | --- | Report mg/L | 1/quarter | Composite |
| Dissolved Organic Carbon | --- | --- | Report mg/L | 1/quarter | Composite |

| Ambient Characteristic ¹⁴ | Reporting Requirements | | | Monitoring Requirements ^{1,2,3} | |
|--------------------------------------|------------------------|----------------|---------------|--|--------------------------|
| | Average Monthly | Average Weekly | Maximum Daily | Measurement Frequency | Sample Type ⁴ |
| Hardness | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Organic Carbon | --- | --- | Report mg/L | 1/quarter | Grab |
| Ammonia Nitrogen | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Aluminum | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Cadmium | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Copper | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Nickel | --- | --- | Report mg/L | 1/quarter | Grab |

| | | | | | |
|--|-----|-----|-------------|-----------|------|
| Total Lead | --- | --- | Report mg/L | 1/quarter | Grab |
| Total Zinc | --- | --- | Report mg/L | 1/quarter | Grab |
| Dissolved Organic Carbon | --- | --- | Report mg/L | 1/quarter | Grab |
| pH ¹⁵ | --- | --- | Report S.U. | 1/quarter | Grab |
| Temperature ¹⁵ | --- | --- | Report °C | 1/quarter | Grab |
| Total Phosphorus ¹⁰ (April 1 – October 31) | --- | --- | Report mg/L | 1/month | Grab |

| Influent Characteristic | Reporting Requirements | | | Monitoring Requirements ^{1,2,3} | |
|-------------------------|------------------------|----------------|---------------|--|--------------------------|
| | Average Monthly | Average Weekly | Maximum Daily | Measurement Frequency | Sample Type ⁴ |
| BOD ₅ | Report mg/L | --- | --- | 2/month | Composite |
| TSS | Report mg/L | --- | --- | 2/month | Composite |

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. The Permittee shall report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136.
2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.
3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., $< 50 \mu\text{g/L}$, if the ML for a parameter is $50 \mu\text{g/L}$). For reporting an average based on a mix of values detected and not detected, assign a value of "0" for all non-detects for that reporting period and report the average of all the results.
4. Each composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.
5. Report annual average, monthly average, and the maximum daily flow in million gallons per day (MGD). The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

The following information shall be reported and submitted as an attachment to the monthly DMRs for each day there was a bypass of secondary treatment:

- date and time of initiation
- total influent flow at time of initiation
- date and time of termination
- total influent flow at time of termination
- total duration of flow
- total volume of flow

A bypass of secondary treatment also is subject to the requirements of Part II.B.4. and Part II.D.1.e. of this permit. Bypass flows shall be measured using a meter.

The Permittee shall not add septage to the wastestream at the treatment plant during activation of the secondary treatment bypass.

6. The percent removal requirement for BOD₅ and TSS apply only during dry weather, meaning any calendar day on which there is less than 0.1 inches of rain and no snowmelt.
7. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).
8. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine. For the purposes of this permit, TRC analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 20 µg/L.

The Permittee may simulate the chlorine contact time in the outfall pipe prior to discharge into the Merrimack River by holding effluent samples in a dark environment before measuring TRC, enterococci and fecal coliform. The holding time shall be calculated based on effluent flow to determine the amount of time required for wastewater to pass between the point of collection and the outfall, but at no time shall the holding time exceed 45 minutes.

Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

9. *Enterococci* and Fecal coliform monitoring shall be conducted concurrently with TRC monitoring, if TRC monitoring is required. The monthly average limit for Fecal Coliform is expressed as a geometric mean. For samples tested using the Most Probable Number (MPN) method, the units may be expressed as MPN. The units may also be expressed as colony forming units (cfu) when using the Membrane Filtration method.
10. See Part I.H.2. for ambient phosphorus monitoring requirements.
11. Total Nitrogen shall be calculated as the sum of Total Kjeldahl Nitrogen and Total Nitrate + Nitrite.
12. The Permittee shall conduct acute toxicity tests (LC₅₀) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachment A** of this permit. LC₅₀ is defined in Part II.E. of this permit. The Permittee shall test the fathead minnow (*Pimephales promelas*). Toxicity test samples shall be collected, and tests completed, during the same weeks in January, April, July and October. The complete report for each toxicity test shall be submitted as an attachment to the second monthly DMR submittal immediately following the completion of the test.
13. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
14. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A**. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
15. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

Part I.A. continued.

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. The discharge shall be free from pollutants in concentrations or combinations that, in the receiving water, settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
4. The discharge shall be free from pollutants in concentrations or combinations that adversely affect the physical, chemical, or biological nature of the bottom.
5. The discharge shall not result in pollutants in concentrations or combinations in the receiving water that are toxic to humans, aquatic life or wildlife.
6. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water.
7. The discharge shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.
8. The Permittee must provide adequate notice to EPA-Region 1 and the State of the following:
 - a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to § 301 or § 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 C.F.R. §122 Appendix A as amended) discharging process water; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - c. For purposes of this paragraph, adequate notice shall include information on:
 - (1) The quantity and quality of effluent introduced into the POTW; and
 - (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
9. Pollutants introduced into the POTW by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall listed in Part I.A.1 and thirteen combined sewer overflow outfalls (CSOs) listed in Part I.F.1 in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).
2. Starting December 21, 2020, the Permittee must provide notification to the public within 24 hours of becoming aware of any unauthorized discharge, except SSOs that do not impact a surface water or the public, on a publicly available website and shall remain on the website for a minimum of 12 months. Such notification shall include the location and description of the discharge; estimated volume; the period of noncompliance, including exact dates and times; and, if the noncompliance has not been corrected, the anticipated time it is expected to continue.
3. Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at <https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification>.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the collection system owned and operated respectively by the City of Haverhill and the Town of Groveland, Massachusetts ("co-permittee") shall be in compliance with the activities and required reporting with respect to the portions of the collection system that each owns or operates. The Permittee and co-permittee shall only be responsible for violations relative to the portions of the collection system that they own and operate.

The Permittee and co-permittee are required to complete the following activities for the respective portions of the collection system which they operate:

1. Maintenance Staff

The Permittee and co-permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

The Permittee and co-permittee shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement

shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

The Permittee and co-permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

Within 30 months of the effective date of this permit, the Permittee and co-permittee shall prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up-to-date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

- a. All sanitary sewer lines and related manholes;
- b. All combined sewer lines, related manholes, and catch basins;
- c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);
- d. All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;
- e. All pump stations and force mains;
- f. The wastewater treatment facility(ies);
- g. All surface waters (labeled);
- h. Other major appurtenances such as inverted siphons and air release valves;
- i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
- j. The scale and a north arrow; and
- k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow to the extent feasible. If certain information is determined to be infeasible to obtain, a justification must be provided along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly.

Any existing mapping shall be updated to contain the elements required by this permit, as described above.

5. Collection System O&M Plan

The Permittee and co-permittee shall develop and implement a Collection System O&M Plan. Any existing Collection System O&M Plans shall be updated to contain the required elements described below.

- a. Within six (6) months of the effective date of the permit, the Permittee shall submit to EPA and the State:
 - (1) A description of the collection system management goals, staffing, information management, and legal authorities;
 - (2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
 - (3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.8. below.
- b. The full Collection System O&M Plan shall be completed, implemented and submitted to EPA and the State within twenty-four (24) months from the effective date of this permit. The Plan shall include:
 - (1) The required submittal from paragraph 5.a. above, updated to reflect current information;
 - (2) A preventive maintenance and monitoring program for the collection system;
 - (3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
 - (4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
 - (5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
 - (6) A description of the Permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Sump pumps and roof down spouts shall be evaluated and removed where practicable. If removing certain sump pumps and roof downspouts is determined to be impracticable, a justification must be provided along with the submittal of the O&M Plan. If EPA disagrees with the assessment, it may require the O&M Plan to be updated accordingly;
 - (7) An educational public outreach program for all aspects of I/I control, particularly private inflow; and
 - (8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

The Permittee and co-permittee shall submit a summary report of activities related to the implementation of its Collection System O&M Plan during the previous calendar year. The report shall be submitted to EPA and the State annually by March 31. The first annual report is due the first March 31 following submittal of the collection system O&M Plan required by Part I.C.5.b. of this permit. The summary report shall, at a minimum, include:

- a. A description of the staffing levels maintained during the year;
- b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
- c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
- d. A map with areas identified for investigation/action in the coming year;
- e. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit; and
- f. If the average annual flow in the previous calendar year exceeded 80 percent of the Facility's 18.1 MGD design flow (14.5 MGD), or there have been capacity related overflows, the report shall include:
 - (1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and
 - (2) A calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee and Co-permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works it owns and operates, as defined in Part II.E.1 of this permit.

E. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

1. The Permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 90 days of the effective date of this permit, the Permittee shall prepare and submit a written technical

evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the Permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the Permittee shall complete and submit the attached form (see **Attachment B – Reassessment of Technically Based Industrial Discharge Limits**) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the Permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. The Permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 C.F.R. § 403. At a minimum, the Permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):
 - a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.
 - b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.
 - c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.
 - d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.
3. The Permittee shall provide the EPA and the State with an annual report describing the Permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment C** (Industrial Pretreatment Program Annual Report Requirements) of this permit and shall be submitted no later than **March 1** of each year.
4. The Permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 C.F.R. 403.18(c).

5. The Permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 C.F.R. § 405 et seq.
6. The Permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The Permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the Permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the Permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The Permittee will implement these proposed changes pending EPA Region I's approval under 40 C.F.R. § 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

F. COMBINED SEWER OVERFLOWS (CSOs)

1. Effluent Limitations

During wet weather (including snowmelt), the Permittee is authorized to discharge storm water/wastewater from the CSO outfalls listed below:

| Outfall # | CSO Outfall Name | Latitude | Longitude | Receiving Water |
|-----------------------------|--------------------------------|--------------|--------------|-----------------|
| Upper Siphon System | | | | |
| 024 | Upper Siphon-Varnum Street | 42.76683934 | 71.09305991 | Merrimack River |
| Middle Siphon System | | | | |
| 021H | Winter Street and Hale Street | 42.777451933 | 71.088324285 | Little River |
| 038 | High Street Diversion | 42.777229680 | 71.088322017 | Little River |
| 021B | Emerson Street | 42.774568391 | 71.082998651 | Little River |
| 021F | Center Barrel - Locke Street | 42.775143535 | 71.084998584 | Little River |
| 021A | Middle Siphon - Essex Street | 42.773064312 | 71.078315989 | Little River |
| Lower Siphon System | | | | |
| 019 | Main Street North | 42.774516793 | 71.076343479 | Merrimack River |
| 040 | Bethany Avenue | 42.774511831 | 71.074242947 | Merrimack River |
| 041 | Chestnut Street | 42.768424503 | 71.065258650 | Merrimack River |
| 013 | Lower Siphon - Buttonwood Ave. | 42.770229811 | 71.064186948 | Merrimack River |
| Bradford System | | | | |
| 032 | Bradford Avenue | 42.770121267 | 71.085433959 | Merrimack River |
| 034 | Middlesex Street | 42.772581435 | 71.078322954 | Merrimack River |
| 039 | South Webster | 42.768424503 | 71.065258650 | Merrimack River |

2. The effluent discharged from these CSOs is subject to the following limitations:

a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below. These Nine Minimum Controls and the Nine Minimum Controls Minimum Implementation Levels which are detailed further in Part I.F.3. are requirements of this permit.

- (1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;
- (2) Maximum use of the collection system for storage;
- (3) Review and modification of the pretreatment program to assure CSO impacts are minimized;
- (4) Maximization of flow to the POTW for treatment;
- (5) Prohibition of dry weather overflows from CSOs;
- (6) Control of solid and floatable materials in CSOs;
- (7) Pollution prevention programs that focus on contaminant reduction activities;
- (8) Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts;
- (9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

b. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

3. Nine Minimum Controls Minimum Implementation Levels

- a. The Permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the controls identified in Part I.F.3.b-g of this permit plus other controls the Permittee can reasonably undertake as set forth in the documentation.
- b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to ensure that they are in good working

condition and adjusted to minimize combined sewer discharges (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the Permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The Permittee shall maintain all records of inspections for at least three years.

- c. **Annually, no later than March 31st**, the Permittee shall submit a certification to MassDEP and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained. MassDEP and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the Permittee. Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).
- d. Dry weather overflows (DWOs) are prohibited (NMC # 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP orally within 24 hours of the time the Permittee becomes aware of the circumstances and a written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. See also Paragraph D.1.e. of Part II of this permit.
- e. The Permittee shall quantify and record all discharges from combined sewer outfalls (NMC # 9). Quantification shall be through direct measurement. The following information must be recorded for each combined sewer outfall for each discharge event, as set forth in Part I.F.4.:
 - Duration (hours) of discharge;
 - Volume (gallons) of discharge;
 - National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The Permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

- f. The Permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC # 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public from the land and water. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

CITY OF HAVERHILL
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

Where easements over property not owned by the Permittee must be obtained to meet this requirement, the Permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable.

The Permittee shall place signs in English and Spanish or add a universal wet weather sewage discharge symbol to existing signs.

g. Public Notification Plan

- (1) Within 12 months of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a Public Notification Plan describing the measures that will be taken to meet NMC#8 in Part I.F.2 of this permit (NMC #8). The public notification plan shall include the means for disseminating information to the public, including communicating the initial and supplemental notifications required in Part I.F.3.g.(2) and (3) of this permit, as well as procedures for communicating with public health departments, including downstream communities, whose waters may be affected by discharges from the Permittee's CSOs.
- (2) Initial notification of a probable CSO activation shall be provided to the public as soon as practicable, but no later than, four (4) hours after becoming aware by monitoring, modeling or other means that a CSO discharge has occurred. Notification may be made through electronic means, including posting to the Permittee's website. The initial notification shall include the following information:
 - Date and time of probable CSO discharge
 - CSO number and location
- (3) Supplemental notification shall be provided to the public as soon as practicable, but no later than, twenty-four (24) hours after becoming aware of the termination of any CSO discharge(s). Notification may be made through electronic means, including posting to the Permittee's website. The supplemental notification shall include the following information:
 - CSO number and location
 - Confirmation of CSO discharge
 - Date, start time and stop time of the CSO discharge
- (4) Annual notification - **Annually, by March 31st**, the Permittee shall post information on the locations of CSOs, a summary of CSO activations and volumes, status and progress of CSO abatement work, and contacts for additional information on CSOs and water quality on a website. This information shall be disseminated through the

means identified in the Public Notification Plan that is submitted in accordance with Part I.F.3.g.(1) of this permit.

The Public Notification Plan shall be implemented no later than 12 months following the effective date of the permit. The initial, supplemental, and annual public notification requirements shall become effective 12 months following the effective date of the permit.

4. Nine Minimum Controls Reporting Requirement

Annually, no later than March 31st, the Permittee shall submit a report summarizing activities during the previous calendar year relating to compliance with the nine minimum controls. The annual report shall include the CSO outfall monitoring data required by Part I.F.5. of this permit.

5. Combined Sewer Overflow Outfall Monitoring

For each combined sewer overflow outfall listed in Part I.F.1 of this permit, the Permittee must monitor the following:

| Parameters | Reporting Requirements | Monitoring Requirements | |
|--|------------------------|-------------------------|-------------|
| | Total Monthly | Measurement Frequency | Sample Type |
| Total Flow | Report Gallons | Daily, when discharging | Continuous |
| Total Flow Duration (Duration of flow through CSO) | Report Hours | Daily, when discharging | Continuous |
| Number of CSO Discharge Events | Report Monthly Count | Daily, when discharging | Count |

- For Total Flow, measure the total flow discharged from each CSO outfall during the month. For Total Flow Duration, report the total duration (hours) of discharges for each CSO outfall during the month.
- For those months when a CSO discharge does not occur, the Permittee must indicate "no discharge" for the outfall for which data was not collected.
- This information shall be submitted with the annual report required by Part I.F.4. of this permit.

G. SLUDGE CONDITIONS

1. The Permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 C.F.R. § 503, which prescribe “Standards for the Use or Disposal of Sewage Sludge” pursuant to § 405(d) of the CWA, 33 U.S.C. § 1345(d).
2. If both state and federal requirements apply to the Permittee’s sludge use and/or disposal practices, the Permittee shall comply with the more stringent of the applicable requirements.
3. The requirements and technical standards of 40 C.F.R. § 503 apply to the following sludge use or disposal practices:
 - a. Land application - the use of sewage sludge to condition or fertilize the soil
 - b. Surface disposal - the placement of sewage sludge in a sludge only landfill
 - c. Sewage sludge incineration in a sludge only incinerator
4. The requirements of 40 C.F.R. § 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 C.F.R. § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 C.F.R. § 503.6.
5. The 40 C.F.R. § 503 requirements include the following elements:
 - General requirements
 - Pollutant limitations
 - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
 - Management practices
 - Record keeping
 - Monitoring
 - Reporting

Which of the 40 C.F.R. § 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, “EPA Region 1 - NPDES Permit Sludge Compliance Guidance” (November 4, 1999), may be used by the Permittee to assist it in determining the applicable requirements.¹

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at

¹ This guidance document is available upon request from EPA Region 1 and may also be found at:
<http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf>

the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year, as follows:

| | |
|---------------------------|------------|
| less than 290 | 1/ year |
| 290 to less than 1,500 | 1 /quarter |
| 1,500 to less than 15,000 | 6 /year |
| 15,000 + | 1 /month |

Sampling of the sewage sludge shall use the procedures detailed in 40 C.F.R. § 503.8.

7. Under 40 C.F.R. § 503.9(r), the Permittee is a “person who prepares sewage sludge” because it “is ... the person who generates sewage sludge during the treatment of domestic sewage in a treatment works” If the Permittee contracts with *another* “person who prepares sewage sludge” under 40 C.F.R. § 503.9(r) – i.e., with “a person who derives a material from sewage sludge” – for use or disposal of the sludge, then compliance with § 503 requirements is the responsibility of the contractor engaged for that purpose. If the Permittee does not engage a “person who prepares sewage sludge,” as defined in 40 C.F.R. § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in § 503 are met. 40 C.F.R. § 503.7. If the ultimate use or disposal method is land application, the Permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 C.F.R. § 503 Subpart B.
8. The Permittee shall submit an annual report containing the information specified in the 40 C.F.R. § 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* “EPA Region 1 - NPDES Permit Sludge Compliance Guidance”). Reports shall be submitted electronically using EPA’s Electronic Reporting tool (“NeT”) (*see* “Reporting Requirements” section below).

H. SPECIAL CONDITIONS

1. The Permittee shall notify the Massachusetts Division of Marine Fisheries within 4 hours of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure which has the potential to violate bacteria permit limits. Within 24 hours a notification of a permit excursion or plant failure shall be sent to the following address and telephone number:

Division of Marine Fisheries
Shellfish Management Program
30 Emerson Avenue
Gloucester, MA 01930
(978)282-0308

2. The Permittee shall develop and implement a sampling and analysis plan for collecting monthly total phosphorus samples from the Merrimack River at a representative location upstream of the facility. Samples shall be collected once per month, from April through October, during dry weather. Dry weather is defined as any calendar day on which there is

less than 0.1 inch of rainfall that is preceded by at least 72 hours without rainfall. The sampling plan shall be submitted to EPA and DEP as part of a Quality Assurance Project at least three months prior to the first planned sampling date.

I. REPORTING REQUIREMENTS

Unless otherwise specified in this permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State no later than the 15th day of the month electronically using NetDMR. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.I.7. for more information on State reporting. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the report due date specified in this permit.

3. Submittal of Industrial User and Pretreatment Related Reports

- a. Prior to 21 December 2020, all reports and information required of the Permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Pretreatment Coordinator in Region 1 EPA Water Division (EPA WD). Starting on 21 December 2020, these submittals must be done electronically as NetDMR attachments and/or using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>. These requests, reports and notices include:

- (1) Annual Pretreatment Reports,
- (2) Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
- (3) Revisions to Industrial Discharge Limits,
- (4) Report describing Pretreatment Program activities, and
- (5) Proposed changes to a Pretreatment Program

- b. This information shall be submitted to EPA WD as a hard copy at the following address:

**U.S. Environmental Protection Agency
Water Division
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912**

4. Submittal of Biosolids/Sewage Sludge Reports

By February 19 of each year, the Permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

5. Submittal of Requests and Reports to EPA WD

- a. The following requests, reports, and information described in this permit shall be submitted to the NPDES Applications Coordinator in EPA WD:

- (1) Transfer of permit notice;
- (2) Request for changes in sampling location;
- (3) Request for reduction in testing frequency;
- (4) Request for change in WET testing requirement; and
- (5) Report on unacceptable dilution water / request for alternative dilution water for WET testing.

- b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov.

6. Submittal of Reports to EPA Enforcement and Compliance Assurance (ECAD) in Hard Copy Form

- a. The following notifications and reports shall be signed and dated originals, submitted as hard copy, with a cover letter describing the submission:

- (1) Prior to 21 December 2020, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting on 21 December 2020, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.
- (2) Collection System Operation and Maintenance Plan (from Co-permittee)
- (3) Report on annual activities related to O&M Plan (from Co-permittee)

- b. This information shall be submitted to EPA ECAD at the following address:

**U.S. Environmental Protection Agency
Enforcement and Compliance Assistance Division (ECAD)
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912**

7. State Reporting

Duplicate signed copies of all WET test reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

**Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management
8 New Bond Street
Worcester, Massachusetts 01606**

8. Verbal Reports and Verbal Notifications

- a. Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.).
- b. Verbal reports and verbal notifications shall be made to:

**EPA ECAD at 617-918-1510
and
MassDEP's Emergency Response at 888-304-1133**

J. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are 1) a Federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§ 1251 et seq.; and 2) an identical State surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 CMR 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this State surface water discharge permit.
2. This authorization also incorporates the State water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314

CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this State surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the EPA. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

**ATTACHMENT A
USEPA REGION 1 FRESHWATER ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL**

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**
- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6°C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at <http://www.epa.gov/region1/enforcement/water/dmr.html> for further important details on alternate dilution water substitution requests.

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

**EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE
DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS¹**

| | |
|---|---|
| 1. Test type | Static, non-renewal |
| 2. Temperature (°C) | 20 ± 1°C or 25 ± 1°C |
| 3. Light quality | Ambient laboratory illumination |
| 4. Photoperiod | 16 hour light, 8 hour dark |
| 5. Test chamber size | Minimum 30 ml |
| 6. Test solution volume | Minimum 15 ml |
| 7. Age of test organisms | 1-24 hours (neonates) |
| 8. No. of daphnids per test chamber | 5 |
| 9. No. of replicate test chambers per treatment | 4 |
| 10. Total no. daphnids per test concentration | 20 |
| 11. Feeding regime | As per manual, lightly feed YCT and <u>Selenastrum</u> to newly released organisms while holding prior to initiating test |
| 12. Aeration | None |
| 13. Dilution water ² | Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q ^R or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness. |
| 14. Dilution series | ≥ 0.5, must bracket the permitted RWC |
| 15. Number of dilutions | 5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution |

- series.
- | | |
|----------------------------|---|
| 16. Effect measured | Mortality-no movement of body or appendages on gentle prodding |
| 17. Test acceptability | 90% or greater survival of test organisms in dilution water control solution |
| 18. Sampling requirements | For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection. |
| 19. Sample volume required | Minimum 1 liter |
-

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

**EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW
(PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST¹**

| | |
|--|---|
| 1. Test Type | Static, non-renewal |
| 2. Temperature (°C) | 20 ± 1 °C or 25 ± 1 °C |
| 3. Light quality | Ambient laboratory illumination |
| 4. Photoperiod | 16 hr light, 8 hr dark |
| 5. Size of test vessels | 250 mL minimum |
| 6. Volume of test solution | Minimum 200 mL/replicate |
| 7. Age of fish | 1-14 days old and age within 24 hrs of each other |
| 8. No. of fish per chamber | 10 |
| 9. No. of replicate test vessels per treatment | 4 |
| 10. Total no. organisms per concentration | 40 |
| 11. Feeding regime | As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test |
| 12. Aeration | None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.) |
| 13. dilution water ² | Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q ^R or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness. |
| 14. Dilution series | ≥ 0.5 , must bracket the permitted RWC |

- | | |
|----------------------------|--|
| 15. Number of dilutions | 5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series. |
| 16. Effect measured | Mortality-no movement on gentle prodding |
| 17. Test acceptability | 90% or greater survival of test organisms in dilution water control solution |
| 18. Sampling requirements | For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection. |
| 19. Sample volume required | Minimum 2 liters |

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

| Parameter | Effluent | Receiving Water | ML (mg/l) |
|---|----------|--------------------|-----------|
| Hardness ¹ | x | x | 0.5 |
| Total Residual Chlorine (TRC) ^{2, 3} | x | | 0.02 |
| Alkalinity | x | x | 2.0 |
| pH | x | x | -- |
| Specific Conductance | x | x | -- |
| Total Solids | x | | -- |
| Total Dissolved Solids | x | | -- |
| Ammonia | x | x | 0.1 |
| Total Organic Carbon | x | x | 0.5 |
| Total Metals | | | |
| Cd | x | x | 0.0005 |
| Pb | x | x | 0.0005 |
| Cu | x | x | 0.003 |
| Zn | x | x | 0.005 |
| Ni | x | x | 0.005 |
| Al | x | x | 0.02 |
| Other as permit requires | | | |

Notes:

- Hardness may be determined by:
 - APHA Standard Methods for the Examination of Water and Wastewater, 21st Edition
 - Method 2340B (hardness by calculation)
 - Method 2340C (titration)
- Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
 - APHA Standard Methods for the Examination of Water and Wastewater, 21st Edition
 - Method 4500-CL E Low Level Amperometric Titration
 - Method 4500-CL G DPD Colorimetric Method
- Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Kärber
- Trimmed Spearman-Kärber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

ATTACHMENT B

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

- * In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.
- * In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.
- * In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

- * In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.
- * In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

- * List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

- * Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

- * Since your existing TBLLs were calculated, identify the following in detail:
 - (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.
 - (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

- * Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see EPA's Local Limit Guidance Document (July 2004).

Item VI.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

(Item VI. continued)

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

- * List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

- * In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planning on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

**REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)**

POTW Name & Address : _____

NPDES PERMIT # :

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance :

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.

| | Column (1) EXISTING TBLLs | Column (2) PRESENT CONDITIONS |
|---|------------------------------|----------------------------------|
| POTW Flow (MGD) | | |
| Dilution Ratio or 7Q10 (from NPDES Permit) | | |
| SIU Flow (MGD) | | |
| Safety Factor | | N/A |
| Biosolids Disposal Method(s) | | |

ITEM II.

| EXISTING TBLLs | | | |
|----------------|--|-----------|--|
| POLLUTANT | NUMERICAL LIMIT (mg/l) or (lb/day) | POLLUTANT | NUMERICAL LIMIT (mg/l) or (lb/day) |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If _____ yes, _____ explain.

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

| Pollutant | Column (1) Influent Data Analyses | | Column (2) MAHL Values | | Criteria |
|--------------|--------------------------------------|---------------------|---------------------------|--|----------|
| | Maximum (lb/day) | Average (lb/day) | | | |
| Arsenic | | | | | |
| Cadmium | | | | | |
| Chromium | | | | | |
| Copper | | | | | |
| Cyanide | | | | | |
| Lead | | | | | |
| Mercury | | | | | |
| Nickel | | | | | |
| Silver | | | | | |
| Zinc | | | | | |
| Other (List) | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

| Pollutant | Column (1) | | Columns (2A) (2B) | |
|--------------|---|-------------------|--|--|
| | Effluent Data Analyses Maximum (ug/l) | Average (ug/l) | Water Quality Criteria (Gold Book) From TBLLs Today (ug/l) (ug/l) | |
| Arsenic | | | | |
| *Cadmium | | | | |
| *Chromium | | | | |
| *Copper | | | | |
| Cyanide | | | | |
| *Lead | | | | |
| Mercury | | | | |
| *Nickel | | | | |
| Silver | | | | |
| *Zinc | | | | |
| Other (List) | | | | |
| | | | | |
| | | | | |
| | | | | |

*Hardness Dependent (mg/l - CaCO₃)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.

[illegible]

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

| Pollutant | Column (1) | Columns | |
|--------------|--|--------------------|---------|
| | Biosolids Data Analyses Average (mg/kg) | (2A) | (2B) |
| | | Biosolids Criteria | |
| | | From TBLLs | New |
| | | (mg/kg) | (mg/kg) |
| Arsenic | | | |
| Cadmium | | | |
| Chromium | | | |
| Copper | | | |
| Cyanide | | | |
| Lead | | | |
| Mercury | | | |
| Nickel | | | |
| Silver | | | |
| Zinc | | | |
| Molybdenum | | | |
| Selenium | | | |
| Other (List) | | | |
| | | | |

Attachment C
Industrial Pretreatment Program Annual Report Requirements

The Permittee shall provide to the Approval Authority with an annual report that briefly describes the POTW's program activities, including activities of all participating agencies, if more than one jurisdiction is involved in the local program. The report required by this section shall be submitted no later than one year after approval of the POTW's Pretreatment Program, and at least annually thereafter, and must include, at a minimum, the applicable required data in appendix A to 40 CFR Part 127. The report required by this section must also include a summary of changes to the POTW's pretreatment program that have not been previously reported to the Approval Authority and any other relevant information requested by the Approval Authority. As of December 21, 2020 all annual reports submitted in compliance with this section must be submitted electronically by the POTW Pretreatment Program to the Approval Authority or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR Part 3 (including, in all cases, Subpart D to Part 3), 40 CFR 122.22, and 40 CFR Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, the Approval Authority may also require POTW Pretreatment Programs to electronically submit annual reports under this section if specified by a particular permit or if required to do so by state law.

The permitted shall submit to Approval Authority and the state permitting authority a report that contains the following information requested by EPA:

1. An updated list of the POTW's Industrial Users by category as set forth in 40 C.F.R. 403.8(f)(2)(i), to include:
 - a. Names and addresses, or a list of deletions and additions keyed to a previously submitted list. The POTW shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical Pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The POTW shall also list the Industrial Users that are subject only to local Requirements. The list must also identify Industrial Users subject to categorical Pretreatment Standards that are subject to reduced reporting requirements under paragraph (e)(3), and identify which Industrial Users are Non-Significant Categorical Industrial Users.
 - b. Permit status. Whether each SIU has an unexpired control mechanism and an explanation as to why any SIUs are operating without a current, unexpired control mechanism (e.g. permit);
 - c. Baseline monitoring reporting requirements for newly promulgated industries
 - d. In addition, a brief description of the industry and general activities;
2. A summary of compliance and enforcement activities during the preceding year, including the number of:

- a. significant industrial users inspected by POTW (include inspection dates for each industrial user),
 - b. significant industrial users sampled by POTW (include sampling dates for each industrial user),
 - c. compliance schedules issued (include list of subject users),
 - d. written notices of violations issued (include list of subject users),
 - e. administrative orders issued (include list of subject users),
 - f. criminal or civil suits filed (include list of subject users) and,
 - g. penalties obtained (include list of subject users and penalty amounts);
3. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;
 4. The Permittee shall prepare annually a list of industrial users, which during the preceding twelve (12) months have significantly violated Pretreatment Standards or requirements 40 C.F.R. 403.8(f)(2)(vii). This list is to be published annually in a newspaper of general circulation in the Permittee's service area.
 5. A summary of all monitoring activities performed within the previous twelve (12) months. The following information shall be reported:

Total number of SIUs inspected; and
Total number of SIUs sampled.

- a. For all industrial users that were in Significant Non-Compliance during the previous twelve (12) months, provide the name of the violating industrial user; indicate the nature of the violations, the type and number of actions taken (administrative order, criminal or civil suit, fines or penalties collected, etc.) and current compliance status. Indicate if the company returned to compliance and the date compliance was attained. Determination of Significant Non-Compliance shall be performed.
6. A summary of all enforcement actions not covered by the paragraph above conducted in accordance with the approved Enforcement Response Plan.
 7. A description of actions being taken to reduce the incidence of significant violations by significant industrial users.
 8. A detailed description of all interference and pass-through that occurred during the past year.
 9. A thorough description of all investigations into interference and pass-through during the past year.

10. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;
11. The Permittee shall analyze the treatment facility influent and effluent at least Annually for the presence of the toxic pollutants listed in 40 CFR Part 122 Appendix D (NPDES Application Testing Requirements) Table III as follows:
 - Antimony
 - Arsenic
 - Beryllium
 - Cadmium
 - Chromium
 - Copper
 - Lead
 - Mercury
 - Nickel
 - Selenium
 - Silver
 - Thallium
 - Zinc
 - Cyanide
 - Phenols

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136. All analytical procedures and method detection limits must be specified when reporting the results of such analyses.

12. The Permittee shall analyze the treatment facility sludge (biosolids) prior to disposal, for the presence of toxic pollutants listed above in 40 CFR Part 122 Appendix D (NPDES Application Testing Requirements) Table III at least once per year. If the Permittee does not dispose of biosolids during the calendar year, the Permittee shall certify to that in the Pretreatment Annual Report and the monitoring requirements in this paragraph shall be suspended for that calendar year.
 - a. The Permittee shall use sample collection and analysis procedures as approved for use under 40 CFR Part 503 or specified in the EPA Region 8 General Permit for biosolids.
13. The summary shall include an evaluation of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraphs above or any similar sampling program described in this Permit.
14. Identification of the specific locations, if any, designated by the Permittee for receipt (discharge) of trucked or hauled waste, if modified;
15. Information as required by the Approval Authority or state permitting authority on the discharge to the POTW from the following activities:
 - (A) Ground water clean-up from underground storage tanks;
 - (B) Trucked or hauled waste; and,
 - (C) Groundwater clean-up from RCRA or Superfund sites.
16. A description of all changes made during the previous calendar year to the Permittee's pretreatment program that were not submitted as substantial or non-substantial modifications to EPA.
17. The date of the latest adoption of local limits and an indication as to whether or not the Town is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.
18. Any other information that may be deemed necessary by the Approval Authority.

**RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0101621
HAVERHILL WATER POLLUTION ABATEMENT FACILITY
HAVERHILL, MASSACHUSETTS**

The U.S. Environmental Protection Agency's Region 1 ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") are issuing a Final National Pollutant Discharge Elimination System ("NPDES") Permit to the City of Haverhill ("the City" or "Haverhill") for the Wastewater Pollution Abatement Facility ("WPAF") located in Haverhill, Massachusetts. This permit is being issued under the Federal Clean Water Act ("CWA" or "Act"), 33 U.S.C., §§ 1251 *et. seq.*, and the Massachusetts Clean Waters Act, M.G.L. Ch. 21, §§ 26-35.

This permit is being jointly issued by EPA and MassDEP. EPA will generally present responses to comments as EPA's and MassDEP's, even where the reference is only to EPA. MassDEP's certification and joint issuance of the permit establishes that MassDEP affirms EPA's response. Accordingly, this document represents the joint determinations of EPA and MassDEP, which are reflected in separately enforceable discharge permits issued under federal and state law.

In accordance with the provisions of 40 C.F.R. § 124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit No. MA0101621 ("Draft Permit"). The Response to Comments explains and supports EPA's determinations that form the basis of the Final Permit. From June 7, 2019 through July 23, 2019, EPA and MassDEP (together, the "Agencies") solicited public comments on the Draft Permit.

EPA and MassDEP received comments from

- Robert E. Ward, Deputy DPW Director, The City of Haverhill dated July 22, 2019
- Jennifer A. Pederson, Executive Director, Massachusetts Water Works Association ("MWWA") dated July 10, 2019.
- Philip D. Guerin, President and Chairman, Massachusetts Coalition for Water Resources Stewardship ("MCWRS") dated July 23, 2019.
- Betsy Reilly, Ph.D., Director of Environmental Quality Department, Massachusetts Water Resources Authority ("MWRA") dated July 23, 2019.
- Gene Porter, Chair, Lower Merrimack River Local Advisory Committee ("LMRLAC") dated July 20, 2019.
- Heather McCann, Executive Director, Groundwork Lawrence ("GWL") dated July 23, 2019
- Joint comments from Julia Blatt, Executive Director, Massachusetts Rivers & Caitlin Peale Sloan, Senior Attorney, Conservation Law Foundation ("CLF") on July 23, 2019.
- Peter Severance, River Merrimack dated July 22, 2019.
- Christine Eckert, Co-Executive Director, and John Macone, Co-Executive Director, Merrimack River Watershed Council ("MRWC") dated July 22, 2019.

After a review of the timely-submitted comments, EPA and MassDEP have made a final decision to issue this permit authorizing the discharge. The Final Permit takes the same fundamental approach as the Draft Permit made available for public comment. EPA's decision-making process has benefited from the various comments and additional information submitted and, as an outgrowth of those materials, EPA has made certain revisions to the permit in response. EPA also has supplemented certain analyses supporting the Final Permit, also in response to comments. These improvements and changes are detailed in this document and reflected in the Final Permit. A summary of the changes made in the Final Permit is listed below. The analyses underlying these changes are explained in the responses to individual comments that follow, which are identified after each change where applicable.

A copy of the Final Permit and this response to comments document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_ma.html.

A copy of the Final Permit may be also obtained by contacting Evan Lewis, U.S. EPA, 5 Post Office Square, Suite 100 (Mail Code: 06-4), Boston, MA 02109-3912; Telephone: (617) 918-1543; Email lewis:evan@epa.gov.

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I. Summary of Changes to the Final Permit

1. The effluent limit for aluminum has been removed from the Final Permit. *See* Response 2.
2. Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1 of the Final Permit has been modified to clarify that a bypass of secondary treatment is subject to the requirements of Part II.B.4. (and not just Part II.B.4.c.) of the permit. *See* Response 3.
3. The last sentence of footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1 of the Final Permit has been modified to say: "The Permittee shall not add septage to the waste stream at the treatment plant during activation of the secondary treatment bypass." *See* Response 4.
4. Part I.B.2 of the Final Permit has been modified to clarify that public notification of SSOs is required, except for SSOs that do not impact a surface water or the public. *See* Response 5.
5. Part I.B.2 of the Final Permit has been modified to require public notification within 24 hours of *becoming aware* of any unauthorized discharge impacting a surface water or the public. *See* Response 5.
6. Part I.C.4.k of the Final Permit has been updated to include "to the extent feasible." The Final Permit also requires the following: "If certain information is determined to be infeasible to obtain, a justification must be included along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly." *See* Response 6.
7. Part I.C.5(b)(6) of the Final Permit has been updated to require sump pumps and roof down spouts to be evaluated and *removed where practicable*. The Final Permit also requires the following: "If removing certain sump pumps and roof downspouts is determined to be impracticable, a justification must be provided along with the submittal of the O&M Plan. If EPA disagrees with the assessment, it may require the O&M Plan to be updated accordingly." *See* Response 7.
8. Part I.F.1 of the Final Permit has been modified to include snowmelt as a source of wet weather. *See* Response 9.
9. Part I.F.3.a of the Final Permit has been modified to read "must include the controls identified in Part I.F.3.b-g of this Permit." *See* Response 11.
10. Part I.F.3.g of the Final Permit requires the submittal and implementation of the public notification plan within 12 months of the effective date of the permit. *See* Response 13.

11. The continuous monitoring requirement for total residual chlorine has been removed from the Final Permit and the monitoring frequency has been changed to three times per day. *See Response 17.*
12. The monthly average and weekly average TSS mass-based limits in the Final Permit have been updated to be 4,529 lb/day and 6,793 lb/day, respectively. *See Response 19.*
13. A footnote to Part I.A.1 of the Final Permit has been added to the 85% removal requirements for BOD₅ and TSS indicating that these limits apply only during dry weather, meaning any calendar day on which there is less than 0.1 inches of rainfall and no snowmelt. *See Response 20.*
14. Footnote 4 to Part I.A.1 of the Final Permit has been deleted and footnote 3 has been modified for clarification to say: "For reporting an average based on a mix of values detected and not detected, assign a value of "0" for all non-detects for that reporting period and report the average of all the results." *See Response 22.*
15. Footnote 8 of Part I.A.1 of the Final Permit has been modified to specify that samples should be held in a dark environment for a period of time equal to the amount of time required for wastewater to pass between the point of collection and the outfall, but at no time shall the holding time exceed 45 minutes. *See Response 37.*
16. Footnote 8 of Part I.A.1 of the Final Permit has been modified to indicate that the holding time may be applied to *enterococci* and fecal coliform monitoring as well. *See Response 38.*
17. Footnote 12 to Part I.A.1 of the Final Permit has been modified to allow WET results to be submitted on the "second monthly DMR submittal following completion of the test." *See Response 39.*
18. Part I.B.2 of the Final Permit has been modified to specify that notifications shall remain on the Permittee's website for a minimum of 12 months. *See Response 40.*
19. Part I.F.3.g of the Final Permit has been modified to remove references to "affected entities" and "affected parties." *See Response 41.*
20. Part I.F.3.f of the Final Permit has been modified to require signage in both English and Spanish, or the addition of a universal wet weather sewage discharge symbol to existing signs. *See Response 53.*

II. Responses to Comments

Comments are reproduced below as received and have not been edited.

A. Comments from Robert E. Ward, Deputy DPW Director, on behalf of the City of Haverhill:

Comment 1

Due to the substantial revisions and additional information provided in this comment letter, the City requests that EPA prepare and make available for additional public comment a revised Draft Permit incorporating the revisions requested herein. The City also requests that prior to issuing a revised Draft Permit, a meeting be held with the City to discuss the comments and additional data provided herein.

Response 1

EPA disagrees that another public notice period with a revised Draft Permit is necessary. The information and arguments in the comments directly related to the subject matter and issues presented in the Draft Permit. Information and data provided by the commenter and issues concerning the permit that were identified by the commenters neither raised “substantial” nor “new” questions warranting reopening the public comment period under 40 C.F.R. § 124.14(b). Clarifications made in the Final Permit are logical outgrowths of the Draft Permit.

In declining to reopen the public comment period, EPA also took into account that the permit has long-since expired, and that the new permit includes additional, new conditions that will ameliorate the impacts of Haverhill’s ongoing CSO discharges on human health and the environment. Given the nature of these impacts, in EPA’s view, time is of the essence, and forestalling issuance of the permit by taking additional, potentially cumulative and duplicative comment, would not further the objectives of the Act, which requires permits to be revisited at regular five-year terms.

The Agencies met with representatives of the Haverhill WPAF on two separate occasions to discuss the NPDES Draft Permit and the permit renewal process. On March 19, 2019, EPA and MassDEP conducted a site visit to tour the facility and discuss the process of renewing the District’s NPDES Permit. On May 15, 2019, EPA met with representatives of Haverhill to further discuss the development of the Draft Permit and answer additional questions on the Draft Permit and the NPDES permit process.

At the May meeting, EPA Region 1 also shared EPA’s goal of finalizing permits within a six months period. The goal is in the FY 2018-2022 U.S. EPA Strategic Plan and represents one of EPA’s highest policy priorities.¹

¹ FY 2018-2022 U.S EPA Strategic Plan, February 2018 (Updated September 2019), page 46.
<https://www.epa.gov/sites/production/files/2019-09/documents/fy-2018-2022-epa-strategic-plan.pdf>

Comment 2

Item 5.1.10.2 of the Fact Sheet provided by EPA with the Draft Permit includes a chronic (monthly average) aluminum limit of 87 µg/L. The City objects to the imposition of a limit for the following reasons:

a) There is no reasonable potential for aluminum to impact the river based on the City's ongoing sampling results after implementing clean sampling techniques. The samples relied upon by EPA were historically collected by the City staff with the understanding that the samples were to be utilized for toxicity testing to determine suitability of the receiving water (Merrimack River) as dilution water for the WET test, or alternately to provide analytical evidence that laboratory dilution water is more appropriate to be used. WET testing involves determining the viability of the daphnia and fat head minnows in a range of effluent concentrations. As was described to EPA during discussions prior to issuance of the Draft Permit, a detailed review of the City's WET test sample collection method clearly shows the collection methods would not be appropriate to use to develop metals limits for NPDES Permits. Sample collection consisted of a staff member using a half-gallon sized plastic pail, attaching a rope to the metal handle, and preparing for travel by coiling the rope and allowing it to drop into the bucket. At the sampling site, the employee would lower the bucket and rope into the river off the Basiliere Bridge and then pull the bucket back. During various river conditions, it was not possible to guarantee the bucket does not collect debris from the surface of the river or sediments, thus misrepresenting the river ambient conditions. As a result of this sampling protocol, the samples were likely contaminated by the method of transport to and from the sampling location as well as the sampling method.

This method of ambient river water collection would, at best, be considered marginally adequate to meet the Educational/Stewardship-level (lowest level and quality samples) as outlined in the MassDEP's Quality Management Plan ("MQMP"). EPA's reliance on this metals data to calculate reasonable potential for metals effluent limits does not come close to meeting the rigor (i.e., accuracy, precision, frequency, comparability, overall confidence, etc.) required for use in waterbody assessments or TMDL development.

Upon review of the WET sampling practices, the City staff initiated a sampling program that employs clean sampling techniques described in EPA's Method 1669, clean sample procedures for metals.²

Key aspects of the City clean sampling program are:

- Clean sampling protocols were developed with location specific considerations;
- Enthalpy Analytical Laboratory complies with EPA Method 1669 for sampling preparation, and was selected to provide the sample bottles, preparation of samples, and analytical services;

² EPA, 1996, Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, Office of Water, Engineering and Analysis Division, July, 1996.

- Ambient water sampling was initiated in June 2019 and three samples were collected to date (Table 1). The City intends to continue sampling and will provide EPA with additional data. The detailed laboratory reports are included in Attachment 1.

Table 1. Summary of Clean Sample Data of Ambient Aluminum Concentrations (mg/L)

| Sample Date | Sample Duplicate #1 | Sample Duplicate #2 | Average | River Flow (USGS Gage Station # 01100000) (CFS) |
|-------------|---------------------|---------------------|---------|---|
| 6/12/19 | 0.080 | -- | 0.080 | 8,170 |
| 6/18/19 | 0.071 | 0.069 | 0.070 | 8,100 |
| 6/19/19 | 0.091 | 0.089 | 0.090 | 7,590 |

- The average daily flow in the Merrimac River upstream of the WPAF outfall discharge location varied from 7,590 to 8,170 cubic feet per second (CFS). This value is more than 8 times the 7Q10 flow of 907 cfs measured at USGS gage station (station #01100000). River velocity impacts ambient metal concentrations due to resuspension of sediments. Samples taken during low flow conditions (close to 7Q10) are more representative of river ambient water quality as shown in the supplemental clean sample data for Lowell RWWU that were collected during low flow periods (1,010 – 6,210 CFS) which are close to 7Q10 flow at its outfall location.
- The City's intends to continue to collect ambient Aluminum samples employing clean sampling techniques to supplement the clean sample data collected to date. The supplemental clean sample data will be submitted to EPA after the public period for consideration of Aluminum reasonable potential calculation. It is anticipated that the City's clean sample testing results will be close to those of Lowell RWWU when samples were taken under flow conditions close to 7Q10 conditions.

Based on the clean sample testing results collected to date and revised dilution factor, there is no reasonable potential for Aluminum exceeding current ambient water quality standard as show in Table 2.

b) As stated in the Fact Sheet (Page 27 of 39) EPA has recently adopted new aluminum criteria, which preliminary indications are would result in a substantially higher criteria when MassDEP revises the Massachusetts aluminum criteria. This will, as stated in the Fact Sheet, likely show that the WPAF will no longer show cause or reasonable potential for the imposition of a water quality based effluent limitation.

c) As stated in the Fact Sheet: *"Because MassDEP has indicated to EPA that its planned revisions to its aluminum criteria will be based on EPA's recommended criteria, EPA reasonably expects its new criteria may also be higher."* The Fact Sheet further says: *"If new aluminum criteria are adopted by Massachusetts and approved by EPA, and before the final aluminum effluent limit goes into effect, the permittee may apply for a permit modification to amend the permit based on the new criteria."* Although EPA acknowledges that the aluminum criteria specified in the Draft Permit is not necessary and will be

significantly higher, it places the onus on the City to (1) take steps to comply with the criteria should MassDEP delay or not complete the planned revisions; or (2) apply for a permit modification.

Table 2. Summary of Metal Reasonable Potential Calculation

| Metal | Q ₁ | ¹ C ₁ | Q ₄ | ² C ₄ | | Q ₅ | C ₅ | | Criteria | | Acute Reasonable Potential | Chronic Reasonable Potential | Limits | |
|----------|----------------|-----------------------------|----------------|-----------------------------|----------------|----------------|----------------|----------------|--------------|----------------|--|--|--------------|----------------|
| | cfs | µg/l | cfs | Acute (µg/l) | Chronic (µg/l) | cfs | Acute (µg/l) | Chronic (µg/l) | Acute (µg/l) | Chronic (µg/l) | C ₄ & C ₅ > Criteria | C ₄ & C ₅ > Criteria | Acute (µg/l) | Chronic (µg/l) |
| Aluminum | 1002 | 80 | 28 | 194.3 | 194.3 | 1,030.0 | 83.11 | 83.11 | 750 | 87 | N | N | N/A | N/A |
| Cadmium | | 0 | | 0 | 0 | | | | 0.86 | 0.14 | N | N | N/A | N/A |
| Copper | | 0 | | 8.7 | 8.7 | | 0.24 | 0.24 | 6 | 4.3 | N | N | N/A | N/A |
| Lead | | 0.2 | | 1.1 | 1.1 | | 0.22 | 0.22 | 26.1 | 1 | N | N | N/A | N/A |
| Nickel | | 0 | | 5.7 | 5.7 | | 0.16 | 0.16 | 219.8 | 24.4 | N | N | N/A | N/A |
| Zinc | | 7 | | 393.8 | 393.8 | | 17.52 | 17.52 | 56.1 | 56.1 | N | N | N/A | N/A |

¹Median concentration for the receiving water just upstream of the facility's discharge taken from the clean sample testing data (see Attachment A).

²Values represent the 95th percentile (for n ≥ 10) or maximum (for n < 10) concentrations from the DMR data and/or WET testing data during the review period.

d) The City understands the need to invest in upgrades that will make a difference to the environment, and support, the achievement of water quality standards in the River; however, there is simply no rational reason to impose a limit for aluminum at this time. Clearly aluminum is not causing water quality to be compromised, since both EPA and MassDEP agree that the current criteria in Massachusetts is not appropriate. To require a limit, as a "paper exercise" while waiting for MassDEP to change its regulation is wasteful not only of the time and expense for the City, but the for time and wasted effort of MassDEP and EPA, whose efforts are spent imposing (and then, rescinding) an effluent limitation that has absolutely no scientific support as an appropriate criteria.

e) Although the City is appreciative of the 36 months compliance schedule that, according to the Fact Sheet, was given to allow Massachusetts time to adopt new criteria and the final permit to then be modified, once the limit is effective, rescinding this limit would be subject to stringent anti-backsliding and anti-degradation regulations, which may prevent any hope of this "paper" limit ever being removed or modified.

f) Finally, while the 36-month compliance schedule provided in Part I.H gives the appearance of a "wait and see" approach, once this limit is in the final permit, the City must immediately begin planning to meet it, since the Draft Permit allows no other option. To meet the new aluminum limit, the City will need to engage the services of an engineering firm to evaluate the current treatment process at the facility, determine the type and extent of upgrade needed to meet the limit, design the upgrade necessary, prepare bid documents and issue and award bids for construction, and finally complete the construction necessary.

This process, in and of itself, requires at least 36 months. Therefore, the City is now forced to spend money to begin the evaluation and upgrade process, for a limit that state and federal

agencies agree is not necessary. Surely there are better ways for the City to use its funds that will actually be protective of water quality.

Request: Remove the environmentally unnecessary and costly aluminum effluent requirement from this Draft Permit. If EPA insists on keeping the effluent limitation, modify the compliance schedule in Part I.H.1 to allow for a 96-month compliance which will:

- a) Provide additional time for Massachusetts to adopt the new criteria, or should MassDEP not adopt the criteria, allow time for the City and co-permittee to implement other operational changes in its water treatment system needed to meet the aluminum criteria;
- b) Prevent the need of the City to immediately begin planning and implementing the upgrade necessary to meet this unnecessary limit; and
- c) Remove the requirement that the City must apply for a permit modification and instead allow for a substitution of the criteria following MassDEP's completion of its planned revisions.

Response 2

Based on the poor ambient sampling methodology described in the comment, EPA agrees that the ambient whole effluent toxicity ("WET") testing data, in this case, may not have yielded representative data and appreciates the Haverhill WPAF taking the initiative to perform clean sampling techniques to provide more representative data. Because the previous data were not representative of ambient water quality, EPA has conducted a new reasonable potential analysis for aluminum using only the ambient data provided above and the same effluent data used in the Fact Sheet. The results of this reasonable potential analysis are presented below. Note that the equation used in this analysis and the definition of each term are the same as the Fact Sheet at 26-27.

| Metal | Q _s | C _s ¹ | Q _d | C _d ² | | Q _r | C _r | | Criteria | | Acute Reasonable Potential | Chronic Reasonable Potential |
|----------|----------------|-----------------------------|----------------|-----------------------------|----------------|----------------|----------------|----------------|--------------|----------------|--|--|
| | cfs | µg/l | cfs | Acute (µg/l) | Chronic (µg/l) | cfs | Acute (µg/l) | Chronic (µg/l) | Acute (µg/l) | Chronic (µg/l) | C _d & C _r > Criteria | C _d & C _r > Criteria |
| Aluminum | 878 | 80.0 | 28 | 194.2 | 194.3 | 906 | 83.5 | 83.5 | 750 | 87 | N | N |

¹Median concentration for the receiving water just upstream of the facility's discharge.

²Values represent the 95th percentile concentrations of the effluent.

Only when both the discharge effluent concentration (C_d) and the resultant downstream concentration (C_r) exceed the applicable criterion is there reasonable potential for the discharge to cause, or contribute to, an excursion above the water quality standard. For aluminum, the resultant downstream concentration does not exceed the applicable criteria. Therefore, the aluminum limit has been removed from the Final Permit.

Monitoring for these metals shall continue to be required as part of the quarterly WET tests. EPA notes that any monitoring requirements in the permit is intended to be representative and may be used in the next permit reissuance process for the purpose of conducting a reasonable potential analysis and, if necessary, establishing effluent limits.

Comment 3

The Draft Permit at page 7 of 26 states: *"A bypass of secondary treatment also is subject to the requirements of Part II.B.4.c and Part II.D.1.e of this permit. Bypass flows shall be measured using a meter."*

Part II.B.4.c refers to an anticipated bypass in which if the City knows it will have a bypass event and must provide notice at least 10 days in advance of the bypass. Part II.D.1.e references the reporting of non-compliant events.

As EPA is aware, it has permitted the City to operate the WPAF during high flow conditions to bypass a portion of the effluent from secondary treatment and blend the primary treatment flow before disinfection and discharge. This practice maximizes the volume of wastewater which receives primary treatment and disinfection, rather than to divert through the CSOs.

It is particularly concerning that each time the City initiates blending of primary and secondary treated flows, it is considered "non-compliance." Not only does this expose the City to fines and penalties from the EPA, it also exposes the City to third party lawsuits.

In accordance with the EPA 1994 Combined Sewer Overflow Control Policy 59 Fed. Reg. 18,688 (April 19, 1994) (National CSO Policy), Section II.C.7 "Maximizing Treatment at the Existing POTW Treatment Plant," a facility may be authorized to allow a CSO-related bypass of secondary treatment without the need to obtain approval on a case-by-case basis, where it can be shown that the facility has completed a No Feasible Alternatives Analysis in accordance with this section.

Specifically, EPA's National CSO Policy states that a permit may "define the specific parameters under which a bypass can legally occur," and further states:

Under this approach, EPA would allow a permit to authorize a CSO-related bypass of the secondary treatment portion of the POTW treatment plant for combined sewer flows in certain identified circumstances.

59 Fed. Reg. at 18,693 (emphasis added). The Clean Water Act (CWA) requirement that "each permit...for a discharge from a municipal combined storm and sanitary sewer shall conform to" the CSO Policy provides statutory authority for issuance of permits authorizing peak wet weather discharges consistent with the National CSO Policy. CWA 402(q)(1), 33 USC 1342(q)(1).

Further, EPA's own guidance documents support the authorization of a CSO-related bypass. Combined Sewer Overflows Guidance for Permit Writers (EPA 832-B-95-008, Sept. 1995) (CSO Permit Writers Guidance). That document has never been withdrawn by EPA, and provides the following example permit language for authorized CSO related bypasses:

A CSO-related bypass of the secondary treatment portion of the POTW treatment plant is authorized when the flow rate to the POTW treatment plant is as a result of precipitation event exceeds [insert flow rate in MGD]. Bypasses that occur when the flow at the time of the bypass is under the specified flow rate are not authorized under this condition and are subject to the bypass provision at 40 CFR 122.41(m).

Finally, new requirements proposed by EPA for the secondary bypass reflects a substantial change in the regulatory requirements that are imposed on NPDES dischargers, which are proposed to be imposed without following any of the procedures required before such a change can be made.

Since the Draft Permit identifies that a secondary bypass may occur clearly the City is authorized under this permit to operate a secondary bypass. Therefore, the event should not be identified as a "non-compliant" event (since it is clearly authorized) and reporting requirements under Part II.D.1.e should also not be required. We note that in the recent NPDES Permit issued to the City of Springfield, EPA authorized the secondary bypass.

Request: EPA must clearly identify the bypass of secondary treatment under the circumstances described in the Draft Permit as an authorized bypass as it has done in other recent permits and in accordance with the National CSO Policy Section II.C.7 and remove those sections of the Draft Permit that identify this treatment process as noncompliant.

Response 3

In accordance with 40 C.F.R. § 122.41, Part II.B.4 incorporates verbatim the *Bypass* rule at 40 C.F.R. § 122.41(m). Bypass "means the intentional diversion of waste streams from any portion of a treatment facility." 40 C.F.R. § 122.41(m)(1). Under EPA regulations, "bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

- (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- (C) The permittee submitted notices as required under paragraph (m)(3) of this section."³

³ 40 C.F.R. § 122.21(m)(4).

However, EPA “may approve an anticipated bypass, after considering adverse effects, if [EPA] determines that it will meet the [above] three conditions.”⁴

The permittee’s comments regarding the “authorization of a CSO-related bypass” reference Section 7 of the 1994 CSO Policy, entitled “Maximizing Treatment at the Existing POTW Treatment Plant.” 18688 Fed. Reg. at 18693. Following the approach set forth therein, EPA could include a CSO-related bypass provision in the permit if there are no feasible alternatives to bypassing under specific conditions. Section 7 of the CSO Policy further provides that:

“[T]he feasible alternatives requirement of the {bypass} regulation can be met if the record shows that the secondary treatment system is properly operated and maintained, that the system has been designed to meet secondary limits for flows greater than the peak dry weather flow, plus an appropriate quantity of wet weather flow, and that it is either technically or financially infeasible to provide secondary treatment at the existing facilities for greater amounts of wet weather flow. The feasible alternative analysis should include, for example, consideration of enhanced primary treatment (e.g., chemical addition) and non-biological secondary treatment. Other bases supporting a finding of no feasible alternative may also be available on a case-by-case basis.”

Id. at 18694.

The permittee has not submitted sufficient information or analysis to satisfy these requirements for inclusion of CSO-related bypass conditions in the Permit for specific flows. Consequently, the permit does not contain such conditions. The Permittee is welcome to submit such documentation for EPA consideration.

EPA acknowledges that the Permittee has submitted a high flow management plan (“HFMP”), dated January 20, 2016, in accordance with the Consent Decree in the matter of the U.S. and Massachusetts v. City of Haverhill, civil action # 16-11698-IT (D. Mass.). The HFMP identifies the circumstances under which the City diverts some wet weather flows around secondary treatment. The HFMP does not itself satisfy the requirements for the approach outlined in Section 7 of the CSO Policy such that it alters the appropriate permitting approach for CSO-related bypasses. Accordingly, there is no basis for incorporating the HFMP into the permit.

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and draft language on that permit. That permit has not yet been finalized.

⁴ *Id.*

EPA disagrees that “new requirements” related to secondary bypass “reflect a substantial change in the regulatory requirements.” Permit provisions incorporating the *Bypass* rule at 40 C.F.R. § 122.41(m) were contained in the previous permit and are therefore not new. The Final Permit contains only three new permit provisions with regard to secondary bypass: (1) the requirement to report bypass information on monthly discharge monitoring reports (“DMRs”); and (2) the requirement to measure the flows that bypass secondary treatment using a meter; and (3) the prohibition on receiving septage during activation of the secondary treatment bypass (See Response 4). EPA does not assess these requirements to be “substantial.”

The notification requirements that apply in the event of a bypass are set forth in Part II.B.4. of the Final Permit. Specifically, if the permittee knows in advance of the need to bypass secondary treatment (i.e., an anticipated bypass), prior notice shall be submitted at least ten days before the date of the anticipated bypass (see Part II.B.4.c. of the Final Permit.). In the event of a bypass which was not anticipated, (i.e., unanticipated bypass) notification shall be submitted within twenty-four hours of the bypass in accordance with Part II.D.1.e. of the Final Permit.

Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1. of the Final Permit has been modified to clarify that a bypass of secondary treatment is subject to the requirements of Part II.B.4. (and not just Part II.B.4.c.) of the permit (which incorporates the regulations in their entirety which pertain to bypasses of secondary treatment that are established at 40 C.F.R. § 122.41(m)).

Comment 4

The Draft Permit page 7 of 26 states: “The Permittee shall not accept septage during any calendar day in which a bypass of secondary treatment is anticipated.”

The City has two comments with respect to this section:

- a) It is not clear how EPA defines “anticipated bypass. However, Part II.B.4.c requires advance notice of an anticipated bypass. As indicated above, except for a planned bypass required to conduct facility maintenance or repair, all other bypass events occur as a result of weather-related conditions.
- b) In the Fact Sheet 3.1.1, EPA notes “A 28,000-gallon septage tank, which receives about four million gallons of septage annually, is also located in the headworks area. Septage is added to the influent wastewater flow upstream of the bar racks.”

Request: Inasmuch as the City is able to accept and hold septage for a period of time, we request that this language be modified as follows: “*The Permittee shall not add septage at the treatment plant to the waste stream during activation of the secondary bypass*”.

Response 4

Footnote 3 to Part I.A.1. of the revised Draft Permit refers to not accepting septage on any date in which the permittee *anticipates* having to bypass secondary treatment.

Bypasses of secondary treatment typically occur during wet weather events when the secondary treatment capacity of the POTW is exceeded. During such events, the flow capacity at the POTW which would receive secondary treatment would be reduced and would also increase the probability that discharges from CSOs would occur. The intent of the provision in the Draft Permit is to minimize the amount of flows that do not receive secondary treatment. EPA recognizes that the septage receiving practices employed at the Haverhill WPAF are such that potential negative impacts from septage being received when flows bypass secondary treatment are minimized. In recognition of these practices, and to clarify the intent of Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1. of the Draft Permit, the Final Permit has been modified to read as follows:

“The Permittee shall not add septage to the waste stream at the treatment plant during activation of the secondary treatment bypass”.

With regard to the comment on how EPA defines “anticipated bypass,” EPA refers to 40 C.F.R. § 122.41(m), which defines “bypass” as “the intentional diversion of waste streams from any portion of a treatment facility” and “anticipated bypass” as occurring when “the permittee knows in advance of the need for a bypass.”

Comment 5

In Section 1.B.2, the Draft Permit requires: “...the Permittee must provide notification to the public within 24 hours of any unauthorized discharge on a publicly available web site. Such notification shall include the location and description of the discharge...”

The City has two comments about this section:

- a) The City understands that unauthorized discharges, including sanitary sewer overflows (SSOs) as defined by EPA, are not authorized by this Draft Permit. However, SSOs also include discharges that may occur in basements of private dwellings due to sewer system backups, or in other areas where the SSO does not result in a discharge to surface water. While the City is agreeable to providing public notification for SSO events that impact surface waters, as these could potentially result in a public health hazard, the City objects to providing public notification of basements backups in private dwellings, and other sanitary sewer releases that do not impact surface water, the municipal separate storm sewer (MS4) or would not otherwise pose a widespread public health threat.

The City is agreeable, however, to continuing to report such events to MassDEP (which is presently copied to EPA) in accordance with paragraph 3 of this section and MassDEP’s state regulations.

Request: Modify Part B.2 to state that public notification, except SSOs that do not impact surface water (Waters of the United States), the MS4 or otherwise provide a widespread public health threat, shall be provided within 24 hours.

- b) With respect to “notification to the public within 24 hours of any unauthorized discharge on a publicly available website...” At times, an unauthorized discharge may occur, and

the City may not become aware of it, or be notified, for a significant time. It is unreasonable to require public notification within 24 hours of the commencement of an unauthorized discharge for which there may have been a delay of the City becoming aware of the discharge.

Request: Modify Part B.2 as follows (underlined text additional) "...the permittee must provide notification to the public within 24 hours of becoming aware of any unauthorized discharge..."

Response 5

a) The commenter's view of EPA's conditioning authority under the Act is overly narrow. EPA has authority to impose conditions related to the proper operation and maintenance of the treatment plant, and an SSO may be the result of an operation and maintenance malfunction within the collection system. However, EPA agrees it is not necessary to post every SSO on a public website since there are instances when an SSO does not impact a receiving water or the public. An example may be a low volume SSO at a manhole cover. EPA has modified the language in the Final Permit to clarify that public notification of SSOs is required, except for SSOs that do not impact a surface water or the public.

b) EPA has modified the language in Part I.B.2 to require public notification within 24 hours of becoming aware of any unauthorized discharge impacting a surface water or the public.

Comment 6

In the Draft Permit, Part 1.C.4, extensive mapping of the sewer collection is required. The Draft Permit provides that within 30 months of the effective date of this permit, the permittee and co-permittee shall prepare detailed and extensive collection system mapping.

This request exceeds the requirements under the federal Nine Minimum Controls (NMCs) and lack statutory or regulatory authority.

The above notwithstanding, the City requests the following modifications:

Request:

- a) Pursuant to the Draft Permit, mapping is required of all sanitary sewers and manholes. Please revise this language to state, "All sanitary sewer extensions owned by the City in the public-right-of-way."
- b) Where the requirements mention information such as pipe diameter, date of installation, type of material, distance between manholes, interconnections, etc., please revise this language to include "to the extent feasible."
- c) Please allow 36 months to comply with this requirement to allow sufficient time to do procurement and provide a meaningful work product.

Response 6

EPA has broad authority under the CWA and NPDES regulations to prescribe the collection of data and reporting requirements in NPDES Permits. NPDES Permit conditions are not solely limited to the Nine Minimum Controls. *See* Section 308 of the CWA; Section 402 of the CWA; 40 C.F.R. § 122.43; CSO Policy at 18696 (“BAT/BCT [for CSO permits] *at a minimum* includes the nine minimum controls”). EPA has regulatory authority to require that the Permittee properly operate and maintain the treatment plant pursuant to 40 C.F.R. § 122.41(e). EPA Region 1 has included mapping as a standard requirement in NPDES Permits issued in Massachusetts since 2007. Furthermore, 40 C.F.R. § 122.41(h) allows EPA to require permittees to furnish “any information” needed to determine permit compliance, and EPA believes that the mapping, operation and maintenance planning, and annual reporting requirements fall within the bounds of these provisions. This information will allow the City of Haverhill to assess the adequacy of the City’s sewer system, better understand vulnerabilities, and more quickly react to specific SSO and CSO events, when they occur.

The comment to restrict sewer system mapping to “All sanitary sewer extensions owned by the City in the public-right-of-way” has not been included in the Final Permit. EPA does not agree that this would provide an accurate representation of the complete collection system and the Permittee did not provide any justification for this proposed change.

Regarding the pipe diameter, date of installation, type of material, etc., EPA agrees that some information may be infeasible to obtain. Therefore, Part I.C.4.k in the Final Permit has been revised to include “to the extent feasible.” However, if certain information is determined to be infeasible to obtain, a justification must be included along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly. EPA reserves the right to default to the original formulation in the next permit cycle if it determines that the City’s justifications were inappropriate and/or inadequate.

Regarding the request for 36 months to comply with this mapping requirement, the comment does not provide any justification for the need for an extended schedule for compliance, and EPA does not agree that additional time is needed to fulfill these requirements. Notably, given EPA’s determination above regarding information that is infeasible to obtain, the need for additional time to comply is even more diminished.

Comment 7

The City has four comments on the Operation and Maintenance requirements in Part I.C.

- a. First, in Parts I.C.2-3, the Draft Permit requires that the City “shall” implement preventive maintenance and infiltration/inflow programs. Although the City agrees that these programs are necessary, the City notes that such programs are already implemented by the City.

Request: The City requests that EPA acknowledge that the City already implements such programs and that compliance with these programs satisfies compliance with the Draft Permit.

- b. Second, in Part I.C.5(a) of the Draft Permit EPA is requiring the submission of a report that provides a description of the collection system management goals, staffing information, and legal authorities. It also requires a list of pump stations, recent studies and construction activities, and a plan for the development of a comprehensive operation and maintenance plan.

Six months is insufficient time to research, analyze, describe and report on these numerous items, particularly for any co-permittee who may not have done this in the past. In addition, the permittee and co-permittee each have its own procurement process that require board, City/Town council or meeting, and/or public work committee for approval of funding, preparation of request for proposal to select consulting firm, negotiation of contract with selected firm to start the work. This process typically takes 9-12 months. Therefore, the City requests that 18 months be allowed for compliance with this condition.

Part (b) requires that a complete and comprehensive Operation and Maintenance (O&M) Plan be completed, implemented, and submitted to EPA and MassDEP within 24 months. As above, this is a tremendous undertaking requiring extensive time and resources, particularly for any co-permittee who does not already have the prescribed O&M plan. In addition, as discussed above, the permittee and co-permittee each have its own procurement process that typically takes 9-12 months. Therefore, the City requests that 36 months be provided for the completion and implementation of this plan.

Request: The City requests that 18 months be provided for the completion of section (a) and 36 months be provided for the completion of the O&M Plan under section (b).

- c. Third, Part 1.C.5(b)(6) requires an infiltration and inflow (I/I) reduction program, including focusing on disconnection and redirection of illegal sump pumps and roof down spouts. The City is already required to implement an I/I program pursuant to the Consent Decree entered between the United States of America, the Commonwealth of Massachusetts and the City (Civil Action No. 166-11698-IT). In addition, the City has determined that sump pumps and roof down spouts are not a significant source of inflow in the City and not all such sources can be practicably remediated.

Request: The City requests that this provision requiring an I/I program or a specific program aimed at removing connected sump pumps and roof down spouts be removed from the permit or in the alternative that such connections will be evaluated and removed where practicable.

- d. Fourth Part 1.C.5(b)(8) requires the City to prepare An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the Draft Permit. However, it is unclear what such a

plan would entail or if the City's current High Flow Management Plan or the Emergency Plan required by the Consent Decree already is adequate to meet this requirement.

Request: The City requests that EPA clarify the scope of the Overflow Emergency Response Plan.

Response 7

EPA acknowledges and supports that the Permittee is already engaged in preventative maintenance of the sewer system and activities to reduce I/I. EPA agrees that current and on-going work related to the requirements in the Part I.C may be included in the O&M Plan. The City's current and ongoing activities may satisfy the Permit requirements if they address each of the elements listed in Part I.C.2-3. EPA evaluates compliance based on the conditions set forth in the Final Permit.

Regarding the request for additional time to comply with Parts I.C.5(a) and (b), EPA believes 6 and 24 months, respectively, is sufficient time. EPA has been including these Capacity, Management, Operation and Maintenance ("CMOM") requirements in municipal permits in Massachusetts for more than 10 years and permittees and co-permittees have been able to fulfill these requirements within this timeframe. Therefore, the provision establishing that the Permittee should provide the best available information within the timeframes designated in the Permit and Part I.C.5 is unchanged in the Final Permit. EPA also notes that considerable work in this regard has already been completed as a response action to the Consent Decree (Civil Action No. 166-11698-IT).

Regarding sump pumps and roof down spouts in Part I.C.5(b)(6), EPA agrees, for the reasons described in the comment, that the Final Permit should require such connections to be evaluated and removed where practicable. However, if removing certain sump pumps and roof downspouts is determined to be impracticable, a justification must be provided along with the submittal of the O&M Plan. If EPA disagrees with the assessment, it may require the O&M Plan to be updated accordingly. EPA reserves the right to default to the original formulation in the next permit cycle if it determines that the City's justifications were inappropriate and/or inadequate. Part I.C.5(b)(6) in the Final Permit has been revised accordingly.

Regarding the Overflow Emergency Response Plan ("ERP") required in Part I.C.5(b)(8), EPA confirms that the Permittee has submitted an ERP, dated June 30, 2017, to EPA and MassDEP pursuant to the November 11, 2016, Consent Decree. *See* Consent Decree Section H ("Emergency Response Plan"). Both EPA and MassDEP conditionally approved the ERP in August of 2017. Although the Plan developed and as conditionally approved pursuant to the CD may suffice to satisfy Part I.C.5(b)(8) of the Permit, the Permittee must nevertheless include it in the required O&M Plan submittal.

Comment 8

Part I.C.6 requires extensive annual reporting including a list of all expenditures for any collection system maintenance activities and corrective actions taken during the previous year. In addition, the annual report would require a description of all unauthorized discharges as defined

in the Draft Permit. Although the City is willing to submit a report detailing compliance with the O&M Plan is necessary, the materials sought are burdensome and will require significant staff time and resources. A list of all expenditures is not relevant to implementation of the O&M Plan. As discussed above in Comment #6, inclusion of SSOs that do not impact surface water is not authorized under the NPDES program or the CWA. These SSOs are otherwise reported to MassDEP and, although actions may be taken to remedy such SSOs, is not relevant to the implementation of the O&M Plan. Further, the City is already required under the Consent Decree (detailed in Section IX of the Consent Decree) with EPA to provide compliance reporting detailing the implementation of the City's IDDE program, CMOM activities, SSO/private/building backups, bypasses and other compliance with the Consent Decree.

Request: The City requests that annual report be limited to a description/summary of the activities taken to implement the O&M Plan, that any extraneous requirements regarding expenditures or SSOs that do not impact surface water be removed and that current compliance reporting under the Consent Decree can be submitted, in lieu of a separate annual report under the permit. The City also requests that EPA provide a template report for use by permittees.

Response 8

See Response 6.

Objectives of the collection system O&M requirements are the prevention of sanitary sewer overflows from the community's collection system and prevention of flow-related violations at Haverhill WPAF. It is a standard permit condition in 40 C.F.R. § 122.41(e), 'Proper Operation and Maintenance', to require the proper operation and maintenance of permitted wastewater systems and related facilities achieve permit conditions. The requirements at 40 C.F.R. § 122.41(d) impose a 'duty to mitigate', which requires that "all reasonable steps be taken to minimize or prevent any discharge violation of the permit that has a reasonable likelihood of adversity affecting human health or the environment."

EPA considers identifying expenditures to properly operate a facility necessary and a proactive approach to operating and maintaining the POTW. Cost effectiveness should clearly be considered in selecting projects to accomplish these goals. EPA does not provide a template for O&M Plans because such plans are unique to each facility. However, EPA encourages the City to consult the EPA document, *Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems*, which can be found on EPA's website at http://www.epa.gov/npdes/pubs/cmom_guide_for_collection_systems.pdf. The publication is intended to provide guidance to the regulated community (i.e. owners and/or operators of domestic sewer systems) about criteria by which to evaluate a collection system's capacity, management, operation, and maintenance ("CMOM") program activities.

Comment 9

Part I.F.1 authorizes the City to discharge storm water/wastewater from the CSOs listed in the Draft Permit during wet weather. However, in addition to wet weather events, the City can experience high flows during periods of warm weather that cause snow melt.

Request: The City requests that EPA add the underlined language below to Part I.F.1: “During wet weather or when snow melt occurs, the Permittee is authorized to discharge storm water/wastewater from the CSO outfalls”

Response 9

Consistent with the CSO Policy, 18688 Fed. Reg. at 18689, and 40 C.F.R. § 122.26(b)(13), EPA agrees to the suggested change to include snow melt as a source of wet weather. The Final Permit has been updated accordingly.

Comment 10

Footnote 6 of the Draft Permit prohibits secondary bypasses that do not qualify as allowable bypasses and that Part 1.F.2.b prohibits violations of federal or state water quality violations. However, the City has the ability to treat certain peak wet weather flows using a secondary bypass, which should be authorized as a means to maximize treatment during wet weather events. The City has submitted a High Flow Management Plan to EPA and MassDEP for operations during these events.

Response 10

See Response 3.

Comment 11

In section I.F.3.a, the Draft Permit states: “The permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the Permittee can reasonable undertake as set forth in the documentation.”

The City understands that as a CSO permittee, it must comply with the NMC requirements of the National CSO Policy. However, the Draft Permit state that requirement in a way that improperly adds to what is required under the policy.

The parts that are underlined above have no legal authority. The NMCs are clearly laid out in the CSO policy, but here EPA appears to be adding to them, and to be doing so in a vague way, leaving the City to guess at what additional steps are required to comply. The first underlined term, “or as subsequently modified to enhance the effectiveness of the controls,” seems to imply that the City has some obligation to “enhance the effectiveness” of the steps that it is taking to meet the NMCs. Beyond the fact that “enhance the effectiveness” is a vague term that is defined nowhere in the Draft Permit or in EPA regulations or guidance, EPA has no authority to require this. Similarly, the concept of “other controls the permittee can reasonably undertake” is completely undefined and vague, and EPA has no legal authority to require the City to take any such steps. Both of the underlined clauses should be deleted from the Draft Permit language.

The City requests that EPA provide a description of “the documentation provided to the EPA and MassDEP.” Once this documentation is identified, the City will need an opportunity to review the contents and determine whether implementation of the NMCs is appropriate and feasible with respect to its contents.

The second sentence of paragraph 3.a. states: “must include the following controls . . .” Please note that there are no additional items following this statement, or as a subset of Part 3.a.

Finally, the City cannot agree to implement the NMCs in accordance with documentation that may be “subsequently modified” (in documentation which is yet to be identified). The City is not in a position to confirm, prior to having the opportunity to review any future modifications, that the modifications are feasible, attainable, practicable or technically appropriate.

Request: The City requests that EPA delete the underlined clauses in this language (“or as subsequently modified to enhance the effectiveness of the controls” and “plus other controls the permittee can reasonably undertake”). Please specifically identify the “documentation provided to EPA and MassDEP” prior to its inclusion in final permit; and remove references to compliance with future (unseen) modifications.

Response 11

The National CSO Control Policy, which was adopted into the Clean Water Act, clearly establishes the nine minimum controls as the required technology-based limitations for CSOs, and establishes that documentation produced by the Permittee shall be the basis for determining the appropriate implementation level of the controls. 59 Fed. Reg. at 18691 (“Permittees with CSOs should submit appropriate documentation demonstrating implementation of the nine minimum controls....”).

The “documentation” referenced in Part I.F.3.a. of the Draft Permit refers to the Permittee’s *NMC Program* (1996))⁵, which describes how the Nine Minimum Controls are to be implemented. For clarification, EPA notes that the permittee has submitted documentation of the implementation of the NMCs, in accordance with their NPDES permit, and not the NMC program itself (submittal of the NMC program was not a permit requirement). Therefore, EPA acknowledges that documentation of the implementation of the NMCs has been submitted and is under review by EPA and MassDEP.

Given the intent of the CSO Control Policy, which includes bringing permittees with CSOs into compliance with CWA goals by applying a flexible approach to CSO control through NPDES permitting, EPA anticipated that modification of the Permittee’s NMC

⁵ Should the permittee wish to review their NMC program, EPA directs them to the NMC Program that was referenced in both the Annual Combined Sewer Overflow Report, Calendar Year 2018, dated April 23, 2018, and also in the Integrated Final Combined Sewer Overflow Long Term Control Plan and Supplemental Environmental Impact Report, dated 2017, that was submitted by the City of Haverhill to EPA. Specifically, page 8 of the 2018 Annual CSO Report and Section 3.2 of the Integrated Final Long Term Control Plan state that: “*Haverhill continues to implement all aspects of its Nine Minimum Control (NMC) program submitted to the EPA in 1996.*”

program may be necessary to reflect current conditions and to determine whether it remains appropriate. This is reflected in the language in Part I.F.3.a. of the Draft and Final Permits, which is structured in such a way so as to allow for an adaptive approach to be taken towards implementation of the NMCs as continued progress is made towards implementing the CSO controls identified in the LTCP, particularly in the event that such controls are deemed unfeasible or if alternative controls are identified which would result in greater reductions in CSO discharges than those which were originally selected.

Subsequent modifications of the Permittee's program to implement the NMCs would be identified by the Permittee and submitted to EPA and MassDEP. This approach recognizes the Permittee's understanding of its own processes and how to best implement the NMCs, including adjustments that may be necessary during the permit term. Likewise, the language regarding "other controls" references measures the Permittee identifies as appropriate for implementing the NMCs. Thus, the language underlined and objected to by the commenter above will remain in the permit as it is consistent with and derived from the CSO Policy itself, does not add any additional "minimum controls," and provides the Permittee with appropriate flexibility to implement the NMCs in accordance with its expertise and knowledge of its facility.

The second sentence in paragraph three of Part I.F.3.a. of the Draft Permit, which states "must include the following controls" has been clarified in the Final Permit to read as "must include the controls identified in Part I.F.3.b-g of this Permit."

The nine minimum controls are outlined in 40 C.F.R. Part 122. Part I.F.3.a of the permit merely states that if the nine minimum controls in 40 C.F.R. Part 122 are modified (through proper rulemaking procedures), then the Permittee will be subject to the modified provisions in 40 C.F.R. Part 122. Any other controls that the Permittee may implement are discretionary.

Comment 12

In Part I.F.3.e of the Draft Permit, EPA is requiring that all flows through all CSOs be quantified through direct measurement. Such measurement is to include hours of discharge and volume.

The City does not object to the need to report CSO events and flows, however, the Draft Permit should allow the City to propose alternative means to comply in the future. The City objects to the extensive and over-reaching nature of EPA's determination of NMC number 9: "Monitoring to effectively characterize CSO impact and the efficacy of CSO controls."

While recording CSO events is necessary to comply with the NMC policy, additional data collection such as hours discharge, volume of discharge, and the National Weather Service precipitation data will result in excessive costs to the City and are requirements that go far beyond those necessary to comply with the NMC, which EPA has repeatedly qualified as "low cost measures."

Section 1-7 of the NMC guidance document specifically states that, “The NMC are controls that...do not require significant engineering studies or major construction, and can be implemented in a relatively short period...”

EPA recognizes that flow metering is a component of the characterization required under Long Term Control Plan implementation and is used to develop appropriate models. Flow metering is not a requirement of the NMC (see NMC guidance document page 10-1: “This minimum control is the precursor to the more extensive characterization and monitoring efforts conducted as part of the LTCP...”)

Specifically, EPA guidance as detailed in the NMC guidance document prescribes the following levels of monitoring as complying with the National CSO Policy:

- Page 10-1: “The ninth minimum control involves visual inspection and other simple methods to determine the occurrence and apparent impacts of CSOs.”
- Page 10-2: “The municipality should record the number of CSO overflows at as many outfalls as feasible...Large systems should work with the NPDES permitting authority to select a percentage of outfalls that represent the entire drainage area and sensitive locations.”
- Page 10-2: “Monitoring of flow and quality at the level necessary to calibrate models and/or estimate pollutant loadings is addressed in EPA’s... ‘Combined Sewer Overflows-Guidance for Long Term Control Plan’ and may be beyond the intended scope of minimum control monitoring.” (emphasis added).
- Page 10-2: “In cases where a calibrated model of the CSS exists (or when one becomes available) model projections may be used to determine the frequency and location of overflow events.”
- Page 10-3: “The following measures can be applied to detect overflows;...visual inspection...a chalk mark...wood blocks...mechanical counting device...”

Request: In accordance with the above EPA guidance, the City requests that CSO events be recorded on DMR submittals, including the option to use variety of CSO activation recordings such as the EPA-approved methods of wood blocks, chalk lines, and mechanical counting devices, as well as any flow meters that may be available. Further, the City requests that EPA acknowledge that the City’s current measuring procedures are acceptable.

Response 12

Chapter 10 of the Nine Minimum Control Guidance, Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls, discusses the implementation of NMC #9 (Monitoring to effectively characterize CSO impact and the efficacy of CSO controls) (*Combined Sewer Overflows Guidance for Nine Minimum Controls*, EPA May 1995 [EPA 832-B-95-003]). This discussion states that this minimum control is a starting point and that extensive monitoring be conducted as part of the Long-Term Control Plan (“LTCP”). The minimum control should develop information on the frequency of overflows at individual points in the system. The Guidance recommends the gathering of basic data, such as date and time of overflow events, total daily rainfall, as well as

information regarding the duration and magnitude of overflow events, as this information can enhance the implementation of CSO controls and can enable measurement of the effectiveness of particular control measures.

It is unclear from the above comment how the requirement in Part I.F.3.e. of the draft permit to report hours of discharge, volume of discharge, and National Weather Service precipitation data will result in excessive costs to the City, as this is already being implemented in accordance with the NPDES permit that was issued to the Permittee in December 2007.

EPA maintains its position that the objective of the monitoring required under the nine minimum controls is to provide data that can be used to evaluate compliance with the technology based effluent limitations for CSOs that are set forth in the permit (i.e., the nine minimum controls), the efficacy of the CSO controls that have been implemented and to validate the assumptions set forth in the permittee's LTCP, as well as to facilitate the CSO notification program. It has been EPA and MassDEP's experience that direct measurement provides the most accurate indication of CSO activations. Therefore, the collection of data through direct measurement is essential for the regulatory agencies to conduct these evaluations. Forms of direct measurement *may* include, but are not limited to, metering of flows at each CSO outfall. Alternate approaches could include, for example, extrapolating the flow volume discharged through a CSO outfall from measurements of water levels in the interceptor sewers (or some other measured metric of a known quantity from which the flow volume could be derived). The requirement to monitor CSO discharges through direct measurement remains unchanged in the Final Permit.

Comment 13

The Draft Permit contains new, detailed requirements for the City to install and maintain signs at all CSO outfall structures, specifying the exact size, color, languages, and wording of the signs. The City has installed such signs. In addition, the Draft Permit requires the City to develop a public notification plan and specifies that the City has to provide notification of every CSO discharge when it occurs, and when it ends, and must do so within 4 hours of becoming aware of when the discharge began, and within 24 hours of becoming aware of when the discharge ends. Further this public notification plan must be developed, installed and implemented within 180 days of the effective date of the permit (EDP).

The City supports public notification of discharge events; however these new requirements, which will result in substantial added costs to the City and its ratepayers, go far beyond what is required by Federal and state law. Under the National CSO Policy, EPA provides that notification under the Nine Minimum Controls (NMCs) includes only: "public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts." The new requirements in the Draft Permit go well beyond the NMC provision and should be deleted from the Draft Permit.

The above notwithstanding, the City offers the following specific comments:

- a) **Public Notification Plan Contents:** The Draft Permit requires that: “Initial notification of a probable CSO activation shall be provided to the public and any other potentially affected party as soon as practicable, but not later than four (4) hours after becoming aware by monitoring, modeling or other means that a CSO discharge has occurred.”

Additionally:

“Supplemental notification shall be provided to the public and any other potentially affected party as soon as practicable, but no later than twenty-four (24) hours after becoming aware of the termination of any CSO discharge(s).”

The Draft Permit requires that the City provide public notification of:

- Date and time of probable CSO discharge
- CSO number and location
- Confirmation of CSO discharge
- Date, start time and stop time of the CSO discharge

In EPA’s Combined Sewer Overflows Guidance for Nine Minimum Controls, Chapter Nine contains specific guidance for the implementation of this NMC measure, as follows:

- Section 1-7 specifically states that, “The NMC are controls that...do not require significant engineering studies or major construction, and can be implemented in a relatively short period...”
- Section 9-1: “The intent of the eighth minimum control, public notification, is to inform the public of the location of the CSO outfalls, the actual occurrences at CSOs, the possible health and environmental effects of CSOs, and the recreational and commercial activities...curtailed as a result of CSOs.”
- EPA NMC guidance provides specific examples of control measures under public notification which are:
 - Posting at affected use areas (Haverhill will consider this in the plan)
 - Posting at selected public places (Haverhill will consider this in the plan)
 - Posting at CSO outfalls (Haverhill has completed this)
 - Notices in newspapers, radio, TV news programs, letters to residents, telephone hotline

The requirements of flow duration, and starting and stopping times, go far beyond any controls EPA considered in the NMC guidance.

The City is supportive of providing public notification of CSO events as they occur. To this end, the City is considering the development of website or other means to CSO activation notification to the public. This website could provide 24/7 notification to the public regarding which CSOs are active. The City considers the development of a meaningful public notification plan to be one of its highest priorities. Not only will the City develop a plan that meets the requirements of the National CSO Policy and NMC guidance documents, but the City may, on a limited basis, solicit input from the

surrounding community. A public notification plan will only be meaningful to the extent that it addresses the needs of the community.

However, the development and implementation of an extensive public notification plan, particularly the implementation of a web-based notification system, cannot be achieved within 180 days. This is simply insufficient time to develop a meaningful plan, solicit appropriate input, determine the content and extent of appropriate notification, develop a notification system that evaluates public posted signs and the needs for additional public postings, plus other contents of meaningful public notification plan.

Notwithstanding the significant degree of effort involved developing the web-based notification system, the City and the Commonwealth of Massachusetts procedures for bidding and procurement are extensive and require adequate time for each phase of the design, construction bidding, award, and implementation process. These procedures include but are not limited to budgeting and obtaining funding, procurement of engineering services to assist in the program development and design, development and bidding plans and specifications, advertising and bidding process and contract award – all of which must occur prior to beginning work on the contract.

Request: The City request that submittal and implementation of public notification system be extended to 36 months following the effective date of the final permit. The City also requests that the requirement for initial notification of probable CSOs be struck from the Draft Permit and that notification of a CSO event will be made to the public to the extent practicable when the City becomes aware that a CSO discharge has occurred.

Response 13

Regarding whether flow duration, and starting and stopping times, go far beyond any controls EPA considered in the NMC guidance, EPA disagrees. Chapter 9-1 of EPA's Combined Sewer Overflow Guidance for Nine Minimum Control Measures, provides *examples* of potential measures for notifying the public of CSO discharge events. See also Response 6. As stated in the guidance, this list highlights *potential* measures for notifying the public of CSO discharge events, and is not, as suggested in the above comment, an all-inclusive list of measures that may be taken for notifying the public.

EPA recognizes the permittee's concerns regarding the need for more time than what was proposed in the Draft Permit for the development of public notification plan that meets the requirements of the permit. EPA has determined that 12 months from the effective date of the permit, an increase from the proposed 180 days, is reasonable for submitting and implementing the plan to EPA and MassDEP. Therefore, Part I.F.3.g of the Final Permit requires the submittal and implementation of the public notification plan within 12 months of the effective date of the permit.

Comment 14

Part 1.F.5 of the Draft Permit requires that monitoring be conducted and reported for “number of hours” of CSO discharge. The duration in hours of a CSO event does not provide meaningful data to the EPA or to the public. For example, a large volume CSO discharge that is flowing at the rate of 10,000 gallons per minute for one hour, has a much greater impact than a CSO discharge that is flowing at the rate of 1 gallon per minute for 24 hours. We question EPA as to what meaningful metric duration of flow in hours provides?

The City notes the flow hours are not readily available on a daily basis. The City already provides this information to EPA and MassDEP on an annual basis and agrees to continue such reporting.

Whereas total volume of a CSO event may provide a meaningful metric to measure future reductions and trends, hours of duration has no meaning unless it is associated with velocity, and the measure of velocity with duration, gives one volume of discharge – which is already required.

Request: The City requests that duration of CSO flow in hours duration be eliminated or in the alternative that the City may propose alternative monitoring and reporting options in the future.

Response 14

See Response 12 regarding the justification for and utility of requiring the collection and reporting of the duration of CSO discharge events, in conjunction with flow volume and number of discharge events. These reporting requirements remain unchanged in the Final Permit. EPA will consider alternative monitoring approaches proposed by the City in the future.

Comment 15

The Draft Permit Fact Sheet calculated the dilution factor based on U.S. Geological Survey gage station (#01100000) in the area of the Merrimack River in Lowell, MA. The City has found several concerns on the calculation as described below.

- a) **Smaller Number of Dataset Used to Calculate 7Q10 Causes Higher Uncertainty in Statistical Analysis:** EPA extrapolated 7Q10 flow from a portion of USGS data set of river daily discharge data (January 1989 to October 2017) as stated in 2019 Fact Sheet page 14 of 41. It is unclear why this 30-year period was selected even though USGS data set included data from June 1923 to December 2018.

The statistical estimate of 7Q10 flow was based on log Pearson Type III distribution to fit the return frequency curve with annual 7-day low flow data. For statistical analysis, the larger the dataset available, the greater the certainty of the estimated value. The Figure below shows the annual 7-day low flow values from 1923 to 2018. There is no observable trend over the entire 95-year period.

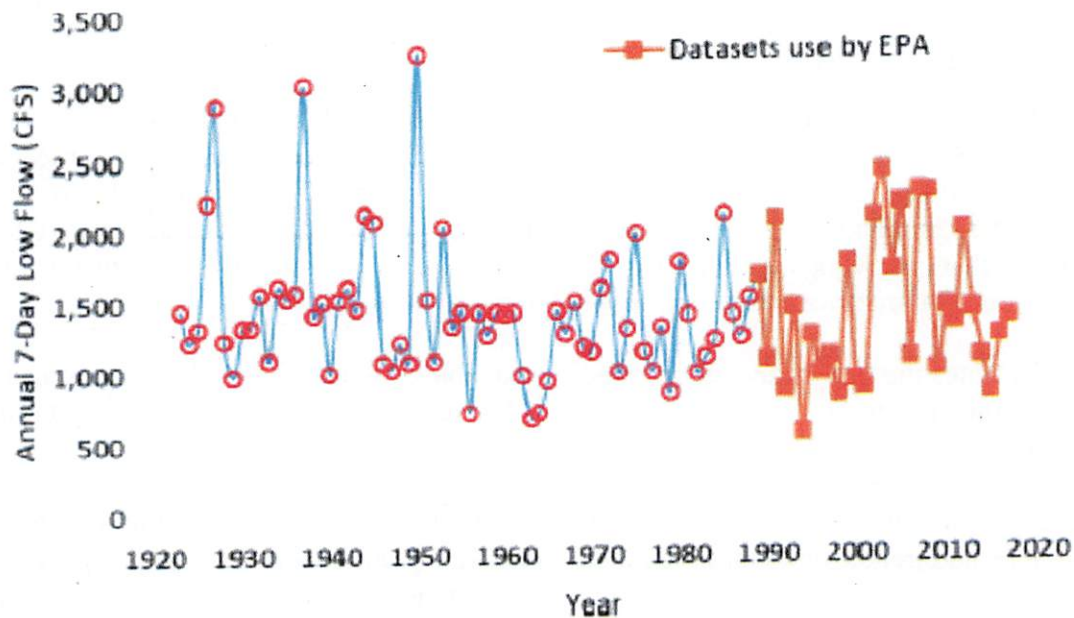


Figure 1. Annual 7-Day Low Flows from 1923 to 2018.

Table below compares 95 percent confidence intervals with Log Pearson Type III distribution analysis using entire 95 years of data versus only using most recent 30 years of data. The comparison indicates that using a smaller sample number in deriving the 7Q10 results in much higher uncertainty (reflected in a much higher discrepancy over the 95 percent confidence interval (from 637.500 to 988.060 cfs). The Log Pearson Type III analysis results are included in Attachment 2.

Table 3 Summary of Confidence Interval Estimates of 7Q10 Flow.

| | 95 percent confidence intervals estimate of 7Q10 flow (CFS) | |
|-----------------------------|--|---------|
| | Lower | Upper |
| Entire USGS Data (95 Years) | 826.330 | 979.240 |
| Most Recent 30 Years' Data | 637.500 | 988.060 |

Request: To provide a more accurate estimate of 7Q10 flow with less uncertainty, EPA should use all river discharge data available (June 1923 to December 2018) for USGS gage (#01100000). It is also consistent with the example described in EPA's Handbook for NPDES Permit Writers for calculating the 7Q10⁶.

- b) Calculated 7Q10 Provided in the Draft Permit at USGS Gage Station (#01100000) is Incorrect: EPA provided a 7Q10 flow of 832 cfs in 2019 Fact Sheet page 14 of 41. However, there is no description of how this value was estimated. Based on the methodology described in EPA's 2018, Low Flow Statistics Tools, A How-To Handbook for NPDES Permit Writers and USGS' SW Toolbox software, the City recalculated the 7Q10 value for the USGS gage station (#01100000) with all available data. The 7Q10 for

⁶ US EPA, Office of Water, *Low Flow Statistics Tools, A How-To Handbook for NPDES Permit Writers*, EPA-833-B-18-001, October 2018.

this gage station is estimated to be 907.33 cfs as illustrated in Figure 2 below as well as shown in Attachment 2.

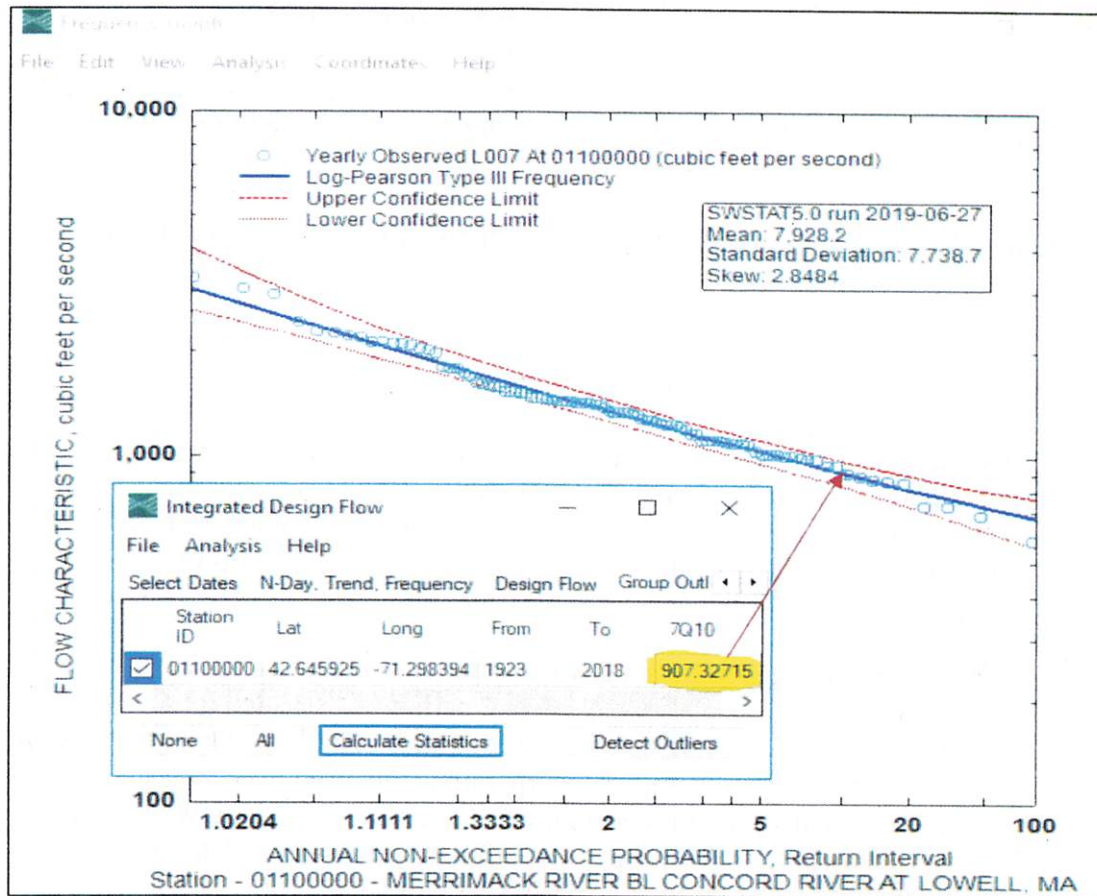


Figure 2 Low Flow Return Frequency Statistical Graph for USGS Gauge Station 01100000 Using USGS SW Toolbox Version 1.0.4¹. The calculated 7Q10 flow is 907.33 cfs. The Analytical processes are based on EPA's Handbook for NPDES Permit Writers.

Request: Based on EPA's Handbook for Permit Writers on estimating 7Q10 value, the City has calculated 7Q10 value for USGS gage station (#01100000) to be 907.33 cfs. The City requests that EPA replace the 7Q10 value with updated estimated of 907.33 cfs.

- c) The Drainage Basin Area for USGS Gage Station (#01100000) is Incorrect. The Draft Permit provided drainage area at the gage to be 4,635 square miles. However, communication with USGS' Richard J. Verdi, Chief of Hydrologic Surveillance and Surface Water Investigations, found that, "The National Water Information System webpage indicates the total drainage area above the gage is 4,635 mi², of which 214 mi² are used for Boston and Worcester. This nets 4,412 mi² that flows beyond the gage to Lawrence." The email communications with USGS are included in Attachment 3.

Request: Based on USGS' estimation of the drainage area that impact Lawrence at USGS gage station (#01100000), the drainage area for calculation of low-flow factor

should be 4,412 square miles. Therefore, the flow factor for USGS #01100000 should be 0.2057 cfs/sq. mi:

$$\text{Flow factor for USGS \#01100000} = \frac{907.33 \text{ cfs}}{4,412 \text{ square miles}} \approx 0.2057 \frac{\text{cfs}}{\text{sq. mi}}$$

Given the drainage area upstream of the WPAF effluent discharge outfall is about 4,880 square miles, the 7Q10 flow at the outfall should be 1,002 cfs or 647 million gallons per day (MGD).

The dilution factor (DF) at the 7Q10 flow of 647 MGD in the receiving water upstream of the discharge, Q_s , and the Facility's design flow of 18.1 MGD, Q_d , should be calculated as 36.7:

$$DF = (Q_s + Q_d)/Q_d = (647 \text{ MGD} + 18.1 \text{ MGD})/18.1 \text{ MGD} = 36.7$$

Request: The City requests that EPA rerun the reasonable potential analysis as well as the calculation of all flow dependent effluent limitations and conditions in the Draft Permit using the corrected instream dilution factor of 36.7 along with any other correspondingly adjusted values for other critical flow conditions used.

Response 15

a) The comment notes that a smaller dataset used to calculate the 7Q10 causes higher uncertainty in statistical analysis. A 30-year period was selected for analyzing the 7Q10 in order to account for changing climatic conditions, in addition to recent hydrological changes in the watershed; a model incorporating data from over 30 years ago is likely to be less representative of current conditions. EPA's 2018, Low Flow Statistics Tools, A How-To Handbook for NPDES Permit Writers considers flow datasets exceeding 15 years in length to be representative for 7Q10 analyses.⁷

The smaller range of confidence intervals derived by Haverhill is a statistical consequence of analyzing a larger dataset, but it does not necessarily imply a more representative depiction of the river's flow regime. In fact, analyzing data from the entire record will bias the 7Q10 in favor of historical conditions since the volume of data older than 30 years old dwarfs the volume of data from the past 30 years. The river's flow regime is variable over time, and analysis of the entire record would likely undermine analysis of the river's current conditions.

b) The comment notes that the calculated 7Q10 provided in the Draft Permit at USGS gage station (#01100000) is incorrect. EPA disagrees with the commenter. The calculated 7Q10 provided in the Draft Permit at USGS Gage Station (#01100000) is based on the

⁷ US EPA, Office of Water, *Low Flow Statistics Tools, A How-To Handbook for NPDES Permit Writers*, EPA-833-B-18-001, October 2018.

DFlow User's Manual, the instruction manual underlying statistical analyses done in USGS SW Toolbox⁸:

$$7Q_{10} = \exp(U + K \cdot S)$$

Where:

U = average of natural logs of low flow values

S = standard deviation of natural logs of low flow values

$K = (2/G)([1 + G \cdot Z/6 - G^2/36]^3 - 1)$

G = skew of natural logs of low flow values

Z = Z-score value for a ten-year recurrence interval (-1.2816)

Table 1: 1989 through 2017 Lowell Gage (#01100000) Consecutive Low Flow Values (cfs)

| Year | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Average | Ln of Average |
|------|-------|-------|-------|-------|-------|-------|-------|-------------|---------------|
| 1989 | 1300 | 1400 | 1500 | 1500 | 1600 | 1700 | 1700 | 1528.571429 | 7.332088871 |
| 1990 | 2349 | 2857 | 3260 | 3354 | 3273 | 3787 | 3607 | 3212.428571 | 8.074782494 |
| 1991 | 836 | 931 | 997 | 1007 | 1077 | 1305 | 1248 | 1057.285714 | 6.963460256 |
| 1992 | 1945 | 1987 | 2147 | 2320 | 2414 | 2647 | 2823 | 2326.142857 | 7.751966749 |
| 1993 | 914 | 725 | 821 | 821 | 759 | 1077 | 1077 | 884.8571429 | 6.785426211 |
| 1994 | 1758 | 2072 | 2098 | 1899 | 1561 | 1348 | 1348 | 1726.285714 | 7.453727393 |
| 1995 | 427 | 455 | 485 | 493 | 493 | 618 | 618 | 512.7142857 | 6.239718742 |
| 1996 | 1453 | 1436 | 1351 | 1300 | 1333 | 1283 | 1283 | 1348.428571 | 7.206695172 |
| 1997 | 768 | 791 | 813 | 812 | 851 | 1890 | 1890 | 1116.428571 | 7.017890094 |
| 1998 | 1106 | 1100 | 1100 | 1116 | 1115 | 1123 | 1123 | 1111.857143 | 7.013786998 |
| 1999 | 875 | 1066 | 784 | 766 | 683 | 1004 | 1004 | 883.1428571 | 6.783486974 |
| 2000 | 1194 | 1635 | 1803 | 2291 | 1914 | 1656 | 1656 | 1735.571429 | 7.459091992 |
| 2001 | 1095 | 1023 | 981 | 1048 | 911 | 932 | 932 | 988.8571429 | 6.896549875 |
| 2002 | 932 | 922 | 959 | 960 | 921 | 944 | 944 | 940.2857143 | 6.84618378 |
| 2003 | 1790 | 1790 | 1810 | 1810 | 1810 | 2020 | 2020 | 1864.285714 | 7.530633264 |
| 2004 | 1480 | 2000 | 2140 | 2140 | 2210 | 2270 | 2270 | 2072.857143 | 7.636683197 |
| 2005 | 1888 | 1842 | 1691 | 1564 | 1592 | 1505 | 1505 | 1655.285714 | 7.41172891 |
| 2006 | 2345 | 2350 | 2313 | 2219 | 2025 | 2028 | 2028 | 2186.857143 | 7.690220697 |
| 2007 | 1078 | 1204 | 1105 | 1086 | 1078 | 1052 | 1052 | 1093.571429 | 6.997204159 |
| 2008 | 2276 | 2336 | 2285 | 2218 | 2063 | 2180 | 2180 | 2219.714286 | 7.705133766 |
| 2009 | 1950 | 1950 | 2050 | 2120 | 2250 | 2250 | 2250 | 2117.142857 | 7.65782275 |
| 2010 | 968 | 1006 | 1006 | 1038 | 1085 | 1161 | 1161 | 1060.714286 | 6.966697815 |
| 2011 | 1380 | 1435 | 1451 | 1529 | 1619 | 1625 | 1625 | 1523.428571 | 7.328718713 |
| 2012 | 1280 | 1293 | 1338 | 1356 | 1399 | 1529 | 1529 | 1389.142857 | 7.236442186 |
| 2013 | 1400 | 1550 | 1550 | 1670 | 1710 | 1910 | 1910 | 1671.428571 | 7.421433972 |
| 2014 | 1397 | 1430 | 1492 | 1511 | 1554 | 1578 | 1578 | 1505.714286 | 7.317022673 |
| 2015 | 1031 | 1040 | 1041 | 1115 | 1249 | 1279 | 1279 | 1147.714286 | 7.045527666 |
| 2016 | 839 | 849 | 855 | 855 | 863 | 899 | 899 | 865.5714286 | 6.7633899 |
| 2017 | 1150 | 1188 | 1206 | 1229 | 1299 | 1327 | 1353 | 1250.285714 | 7.131127376 |

Given the data above, $U \approx 7.23$, $S \approx 0.389$, $G \approx -0.166$, and the $7Q_{10}$ is 832 cfs.

⁸ Rossman, L. A. *DFlow User's Manual*. U.S. Environmental Protection Agency, Washington, DC, EPA-600-8-90-051 (NTIS 90-225616), 1990.

c) The comment notes that the drainage basin area for USGS gage station (#01100000) is incorrect. EPA agrees with USGS's assessment that 214 square miles should be subtracted from the Lowell gage's upstream drainage area, equaling a total of 4,421 square miles. However, the 214 square miles would also need to be subtracted from Haverhill's upstream drainage area (going from 4,880 square miles to 4,666 square miles) for analysis. After subtracting 214 square miles from both the Lowell gage's upstream drainage area and Haverhill's upstream drainage area, the 7Q10 is 878 cfs, as opposed to 876 cfs when not subtracting 214 square miles: a difference of 0.2%. This does not result in any change to the dilution factor of 32.3 or to the Final Permit. The updated 7Q10 has been used in Response 2 above regarding aluminum.

Comment 16

The Draft Permit has reduced the City's effluent limitation for Total Residual Chlorine (TRC) from 0.4 mg/L as a monthly average and 0.7 mg/L as a daily maximum to 355 µg/L as a monthly average and 614 µg/L as a daily maximum. This change in effluent limitation was based upon the revised dilution factor.

Based on the analysis described in item #15 above, the correct dilution factor should be 36.7. Therefore, the total residual chlorine should also be calculated with this dilution factor.

Request: The water quality-based chlorine limits should be calculated as follows:

$$\begin{aligned}\text{Chronic limit} &= \text{Chronic criteria} \times \text{dilution factor} \\ &= 11 \mu\text{g/L} \times 36.7 = 404 \mu\text{g/L}\end{aligned}$$

$$\begin{aligned}\text{Acute limit} &= \text{Acute criteria} \times \text{dilution factor} \\ &= 19 \mu\text{g/L} \times 36.7 = 697 \mu\text{g/L}\end{aligned}$$

Response 16

See Response 15. As there has been no change to the dilution factor, there are no changes to the total residual chlorine limits in the Final Permit.

Comment 17

Footnote 8 to Part I.A of the Draft Permit requires that the City report the average monthly and maximum daily TRC using data collected by a continuous TRC analyzer. "The Permittee shall substitute the average of three TRC grab samples per day, for any day that they are unable to comply with the continuous reporting requirement discharge." However, in the past the City has encountered issues with the reliability of continuous TRC analyzers. The City has found that the continuous TRC analyzers require significant ongoing maintenance and recalibration (sometimes as often as every 8 hours). In addition, as the City does not have a chlorine contact chamber, low and high dose alarms would be irrelevant at the WPAF. Finally, any analyzer would provide only instantaneous residual data and the analyzer would not show data representative of the residual after holding times.

Request: The City requests that the continuous reporting requirement be deleted.

Response 17

Footnote 8 in the Draft Permit provides the Permittee with an option to “substitute the average of three TRC grab samples per day, for any day that they are unable to comply with the continuous reporting requirement.” EPA does not agree with the commenter’s assertion that continuous monitoring instrumentation is unreliable. However, given that the WPAF does not have a chlorine contact chamber and the permit allows for holding time to account for the chlorine contact time that occurs in the outfall pipe before discharge, EPA agrees that continuous monitoring for chlorine is infeasible for this discharge. Therefore, EPA has removed the continuous monitoring requirement for TRC in the Final Permit. Rather, the Permittee will be required to conduct three TRC grab samples per day because they are unable to conduct continuous monitoring.

EPA believes it is critical to have an alarm system to indicate low and high doses as well as system interruptions and malfunctions so that the Facility can notify the Massachusetts Division of Marine Fisheries as required by Part I.H.3 of the Permit. Although continuous monitoring of this discharge is not feasible, EPA recommends that the facility should be aware of the dosing necessary to meet the bacteria and total residual chlorine effluent limits based on daily grab samples and use this information as a starting point for establishing alarms.

Finally, EPA notes that the Comprehensive Plant Evaluation⁹ conducted by Woodard and Curran, completed in 2017 and submitted as required by the City’s Consent Decree, recommends a full upgrade of the entire disinfection system. EPA notes that this upgrade should ensure compliance with the TRC and bacteria limits as well as incorporate appropriate alarms as described above.

Comment 18

The Draft Permit requires weekly monitoring and reporting for total nitrate, total nitrite, total Kjeldahl nitrogen and total nitrogen from April through October, and monthly reporting from November through March.

The City offers the following comments:

- a) EPA should clarify that total nitrogen (TN) reporting is a calculation, not an additional analyte for the City to analyze. TN is simply the sum of Nitrate + Nitrite plus total Kjeldahl nitrogen, both of which are already required to be analyzed weekly in the Draft Permit.
- b) Weekly monitoring for seven months and monthly monitoring for five months will result in a total of 33 monitoring results. This data set far exceeds what is necessary to determine cause or reasonable potential for the need of a water quality based effluent limit for nitrogen.

⁹ Woodard and Curran, 2017, “Wastewater Treatment Facility, Comprehensive Plant Evaluation, City of Haverhill, MA”

Specifically, CFR 122.44(i) states that: “monitoring results shall be established on a case-by-case basis with frequency dependent on the nature and effect of the discharge, but in no case shall be less than one year.”

Further the EPA Technical Support Document (TSD), which EPA uses to determine reasonable potential and cause analysis provides for a statistical procedure for any number of samples, including a statistically sound method when smaller numbers of data are available. Section 5.5.3 of the TSD states: *“The statistically based method for permit limit derivation results in an MDL that does not depend on monitoring frequency...the AML decreases as the number of monthly samples increases because an average of 10 samples, for example, is closer to the LTA than average based on 4 samples. However, the stringency of these procedures is constant across monitoring frequencies because the probability basis and the targeted LTA performance are the same regardless of the number of samples taken.”*

The TSD goes on to state that: *“...the statistical procedure should be employed using an assumed number of samples of at least four for the AML derivation.”*

Request: The City requests that monitoring be reduced to quarterly for this permit cycle. This will supply a data set of ten values, which is statistically sufficient to conduct a cause or reasonable potential analysis for nitrogen. In addition, the City requests that if the permit is administratively continued after the five-year term expires, that the nitrogen reporting requirement be discontinued as EPA will have collected sufficient data for any future permitting requirements.

Response 18

Regarding total nitrogen reporting, EPA agrees that the total nitrogen reporting is based on a calculation. EPA notes that this point has already been clarified in footnote 11 of the Draft Permit, which states “Total Nitrogen shall be calculated as the sum of Total Kjeldahl Nitrogen and Total Nitrate + Nitrite.”

Regarding monitoring frequency, EPA believes that the required frequency in the Draft Permit is reasonable. As evidenced from quarterly monitoring data from Greater Lawrence Sanitary District (“GLSD”) and Lowell Regional Wastewater Utility (“LRWU”), effluent concentrations of nitrogen can vary greatly. Over the last five years, total Kjeldahl nitrogen ranged from 14.2 to 34.9 mg/L and 3.7 to 30.1 mg/L from GLSD and LRWU, respectively. For this same period nitrate+nitrite ranged from 1 to 3.33 mg/L and 0.16 to 8.81 mg/L from GLSD and LRWU, respectively. EPA believes that weekly nitrogen monitoring during the growing season (when the impacts of nitrogen are of greatest concern) and monthly monitoring during winter months is warranted in order to most accurately characterize total nitrogen loadings from Haverhill. Furthermore, these data may be utilized by EPA to determine both the need for a limit and, if one is necessary, what that limit will be. Given the variability of effluent nitrogen concentrations over the course of the growing season, it is important for EPA to use a dataset that is accurate and representative of the receiving waters.

Comment 19

The mass loading allowance for BOD was reduced from 4,529 lb/day as a monthly average to 4,504 lb/day as a monthly average and 6,755 lb/day as a weekly average.

EPA has based this reduction on the following: “The mass-based BOD limit in the 2007 Permit of 4,529 lb/day (monthly average) was based on the 1975 concentration-based WLA and the design flow of the facility. The design flow of the facility was revised to 18.1 MGD (instead of 18 MGD) in the 2007 Permit. Thus, the mass-based BOD limit of in the 2007 was 4,529 lb/day, less stringent than the limit specified in the 1975 Merrimack River Water Quality Management Plan.”

EPA has based this reduction in BOD loading upon a permit issuance in 2007 that provided for an increase in flow from 18.0 MGD to 18.1 MGD, and that EPA has failed to identify that a modification to the water quality management plan WQMP was necessary. As the design flow was always 18.1 MGD (as stated in the O&M Manual), the City objects to EPA’s unilateral application of load limitations rolled back to conditions present over 10 years ago, only because EPA failed to modify the WQMP.

Further, an online search for the 1975 WQMP did not locate this document. Inasmuch as the 1975 WQMP is being used as the basis for a loading reduction and is part of the administrative record for this Draft Permit, we request that the EPA make available a copy of this document for our review. The City reserves the right to modify this comment, once it has had the opportunity to review this aspect of the administrative record.

Request: The City should be provided the opportunity to request a modification of the WQMP to address the flow increase from 18 MGD to 18.1 MGD, to address this issue, with no change to the permitted BOD load limitations in the previous permit. Please make available to the City the 1975 WQMP, which is part of the administrative record and was used as a basis for the permit condition.

Response 19

Regarding the commenter’s request to modify the water quality management plan (“WQMP”), MassDEP no longer revises WQMPs and instead develops total maximum daily loads (“TMDLs”) for specific water-quality stressors, where appropriate.

In order to be consistent with the 1975 Merrimack River Water Quality Management Plan,¹⁰ a basin plan completed pursuant to the applicable basin plan under CWA § 209, EPA has determined that it is appropriate for the BOD₅ mass-based limit to be 4,500 lb/day. This is the same limit as in the Draft Permit. Therefore, the BOD₅ limit in the Final Permit has not been changed.

However, the TSS limits in the Draft Permit were determined to be transcribed in error from the calculations found on page 19 of the Fact Sheet. To correct this error, the

¹⁰ Massachusetts Department of Environmental Quality Engineering, *The Merrimack River Water Quality Management Plan*, 1975, page 59.

monthly average and weekly average TSS mass-based limits in the Final Permit have been updated to be 4,529 lb/day and 6,793 lb/day, respectively. This is consistent with the 2008 Permit.

Regarding the commenters request to review the 1975 WQMP, EPA notes that this document is part of the administrative record and was referenced on page 19 of the Fact Sheet. Additionally, as stated on page 37 the Fact Sheet, the administrative record (which includes this document) could have been requested at any time from the EPA contact listed.

Comment 20

The Draft Permit carries over the greater than or equal to 85% removal requirement for both BOD and TSS. While the City has no objection to this limitation, we request that it can be calculated using a six-month rolling average of influent and effluent data, rather than the individual monthly average.

The Draft Permit requires influent sampling to be conducted twice/month for both TSS and BOD. Since the plant serves a combined sewer community, the influent flow can vary greatly depending on the weather conditions. During wet weather, influent TSS could be as low as 100 mg/L, which is substantially below the industry design standard of 250 mg/L.

EPA previously acknowledged that during wet weather the WPAF should be maximized. The conditions stated in the 2007 Permit Fact Sheet (pages 7 and 8 of 21) stated that “to encourage the maximum use of the treatment plant, the average weekly mass loading limits are discontinued in this draft permit. The average weekly concentration and both average monthly concentration and mass limits are retained.” Further, the 2007 Permit Fact Sheet included that 85% removal requirement “applies only during dry weather and the average percent removal will be calculated each month, using only those samples collected on days with less than 0.1 inches of precipitation and no snow melt.”

Having the ability to use a six-month rolling average of influent flow values when calculating percent removal will allow the City to have better representative data when calculating the limit.

Request: The City requests that (1) EPA allow the City to continue sampling five times per week as presently conducted and that (2) EPA allow a six-month rolling average value of influent BOD and TSS to be used when calculating percent removal. In the alternative, the City requests that the conditions stated in the 2007 Permit Fact Sheet (pages 7 and 8 of 21) discussed above be included in the Draft Permit, limiting the required removal percentage to only dry weather.

Response 20

Regarding influent sampling frequency, EPA notes that the requirement to sample influent twice per month is a minimum number of samples. Hence, the Permittee may exceed two samples per month and instead sample five times per month.

Regarding the percent removal requirement, EPA notes that the 85 percent removal requirements for BOD₅ and TSS are included in the Draft Permit as technology-based limits for secondary treatment pursuant to 40 C.F.R. § 133.102. However, a special consideration may be made for treatment works with combined sewer systems based on 40 C.F.R. § 133.103(a), which allows for flexibility with respect to percentage removal levels on a case-by-case basis. EPA has determined upon review of the record before it that an attainable percentage removal level cannot be defined under wet weather conditions. To avoid creating any disincentive to minimize CSO discharges, EPA agrees with the commenter and has added a footnote in Part I.A.1 of the Final Permit to clarify that the 85 percent removal requirement applies only during dry weather (meaning any calendar day on which there is less than 0.1 inches of rainfall and no snow melt).

Comment 21

The flow limitation in the permit should be removed or designated as a “report only” requirement: EPA should recognize that flow is not a regulated parameter because it is not a “pollutant” and should not be included in the permit. It is not permissible to regulate flow, regardless of the pollutant levels present. The City disagrees with EPA’s assertion that the flow of water is considered a pollutant in 33 U.S.C. §1362(6), which defines “pollutant” as”

dredged spoil [sic], solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Although the City agrees that municipal waste such as that discharged by the City qualifies of a pollutant, flow is not a pollutant. However, EPA’s identification of “non-conventional pollutants” as defined at 40 CFR § 439.1(n) does not identify flow as a parameter. EPA is seeking to re-write the applicable NPDES rules as well as the Clean Water Act to regulate flow regardless of the pollutant levels present, a premise that the federal courts have found impermissible. See e.g. *Iowa League of Cities v. EPA* (8th Cir. 2013).

EPA contends at page 8 of 39 in the Fact Sheet that its “practice is to use design flow as a reasonable and important worst-case condition” to calculate reasonable potential and water quality based effluent limitations. As stated by a US District Court decision in the case *Virginia Department of Transportation et al. vs. EPA*, No. 1:12-CV-775, 2013 WL 53741 (E.D. Va. Jan. 3, 2013), where the Court decided in favor of Virginia DOT that stormwater cannot be considered a pollutant as a surrogate for sediment load. The Court affirms that there is “no ambiguity in the wording” of 33 U.S.C. §1362(6), *id.* *3, stating on Page 9 that “Stormwater runoff is not a pollutant, so EPA is not authorized to regulate it via TMDL.” *Id.* *5. The Court goes on to state that

Claiming that the maximum stormwater load is a surrogate for sediment, which is a pollutant and therefore regulable, does not bring stormwater within the ambit of EPA’s TMDL authority. Whatever reason EPA has for thinking that a stormwater flow rate TMDL is a better way of limiting sediment load than a sediment load TMDL, EPA cannot be allowed to exceed its clearly limited

statutory authority.

Id.

This decision applies equally to EPA's rationale in the Draft Permit, because EPA intends to use "design flow as a reasonable and important worst-case condition," or, in other words, as a surrogate for the load of pollutants discharged by the City.

The City notes that Section 5.1.1 of the Fact Sheet incorrectly states that the City had two violations of the 12-month rolling flow average of 18.1 MGD during the prior permit period. This is not correct.

Request: The City requests that the flow limit be deleted, recognizing that EPA does not have the authority to regulate such flow. In addition, the City requests that EPA revise the Fact Sheet to acknowledge that the City has not violated the 12-month rolling flow average of 18.1 MGD during the prior permit period.

Response 21

EPA Region 1 has included limits on the wastewater effluent flow from POTWs, based on the design capacity of the facility, throughout Massachusetts (96 facilities since 1984, 13 of which include CSOs, including the 2008 NPDES Permit issued to Haverhill) and increasingly in New Hampshire (13 facilities since 2005). Moreover, States and other EPA Regions have issued over 3,750 NPDES permits (92 facilities with CSOs) to POTWs with similar limits in other parts of the country.

The inclusion of a wastewater effluent flow limit in the Haverhill WPAF permit is authorized by the CWA § 402(a)(2), which provides that "[t]he Administrator shall prescribe conditions for such permits to assure compliance with the requirements of" CWA § 402(a)(1) – including, by reference, CWA § 301 – "and such other requirements as [she] deems appropriate." As discussed below, the Haverhill wastewater effluent flow limit is an appropriate "operation and maintenance" requirement that assures compliance with the technology and water quality-based effluent limitations required by CWA § 301 and is "appropriate" pursuant to CWA § 402(a)(2).

40 C.F.R. §§ 122.41(d) and (e) require the permittee to (1) "take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment," and (2) "at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." The design capacity-based wastewater effluent flow limit is authorized by section 402(a)(2) and appropriate in order to assure that Haverhill operates its facility to comply with its permit's technology- and water quality-based effluent limitations.

As stated in the Fact Sheet, using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is fully consistent with, and anticipated by NPDES permit regulations. 40 C.F.R. § 122.45(b)(1)

provides, “permit effluent limitations...shall be calculated based on design flow.” POTW permit applications are required to include the design flow of the treatment facility. Id. § 122.21(j)(1)(vi).

The City unfairly contends that EPA sought to limit wastewater effluent flow from the facility on the basis that flow, or quantity of water, was a “pollutant” whose discharge could be regulated under the Act. This is not the case. Establishing water quality-based effluent limitations that are sufficiently protective to meet in-stream water quality criteria requires EPA to account for both *wastewater effluent* and receiving water flows, as EPA explained in the Fact Sheet. Conditions imposed by EPA to limit wastewater effluent flows from the facility for the permit term are designed to assure that the facility’s pollutant discharges do not result in excursions above in-stream water quality criteria, in accordance with section 301(b)(1)(C) of the Act and implementing regulations. 40 C.F.R. §§ 122.4(d), 122.44(d)(1), 122.44(d)(1)(vii)(A), 122.44(d)(5). Most trenchantly, 40 C.F.R. § 122.4(d) prohibits issuance of an NPDES permit “[w]hen the imposition of conditions cannot *ensure* [emphasis added] compliance with the applicable water quality requirements of all affected States.” Section 122.44(d)(1) is similarly broad in scope and obligates the Region to include in NPDES permits “any requirements...necessary to: (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” “Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits” in order to achieve the statutory mandates of Section 301 and 402. *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992). Under CWA section 402, EPA may issue NPDES permits “for the discharge of any pollutant, or combination of pollutants” if the permit conditions assure that the discharge complies with certain requirements, including those of section 301 of the CWA. The Act defines “pollutant” to mean, inter alia, “municipal . . . waste[]” and “sewage...discharged into water.” CWA § 502(6). EPA has implemented Sections 301(b)(1)(C) and 402 of the Act through numerous regulations, which specify when the Region must include specific permit conditions, water quality-based effluent limitations or other requirements in NPDES permits. The wastewater effluent flow limit is a condition designed to ensure that WQS will be met. More specifically, EPA based both its reasonable potential calculations and its permit effluent limitations for individual pollutants on a presumed maximum wastewater effluent discharge from the facility. EPA’s reasonable potential regulations require EPA to consider “where appropriate, the dilution of the effluent in the receiving water,” 40 C.F.R. § 122.44(d)(1)(ii), which is a function of both the wastewater effluent flow and receiving water flow. EPA guidance directs that this reasonable potential analysis be based on critical conditions. EPA, accordingly, is authorized to carry out its reasonable potential analysis by presuming that a plant is operating at its design flow during critical instream conditions (*i.e.*, 7Q10) when assessing reasonable potential.¹¹

The commenter’s reliance on *Virginia Department of Transportation* is badly misplaced and not relevant to this proceeding. That case concerned EPA’s approval of TMDLs

¹¹ USEPA, 2010, National Pollutant Discharge Elimination System (NPDES) Permit Writers’ Manual, EPA-833-K-10-001, p. 6-17

under Section 303 of the Act, not the development of reasonable effluent limitations under separate and distinct authority governing the NPDES permitting process—Sections 301, 402 and implementing regulations.

EPA notes, for the record, the commenter's concession that "municipal waste such as that discharged by the City qualifies of a pollutant," and would thus be subject to limitation under Section 402, rendering its arguments regarding surrogates at best incongruous, if not irrelevant.

EPA agrees with the comment that the Permittee did not have any violations of the flow limit during the review period, contrary to page 16 of the Fact Sheet which references two violations. While the Fact Sheet has not been updated because it was developed to support the Draft Permit, this response serves to update the administrative record.

Finally, EPA notes that the previous permit also contained a flow limit. To the extent the Permittee anticipates compliance issues with this limit, EPA notes that it has been able to work with municipalities on this issue through enforcement mechanisms. The Permittee is encouraged to contact EPA's Enforcement and Compliance Assurance Division ("ECAD") if it has such concerns. Please see https://rl-gis-web.ri.epa.gov/ecad/enforcement_comp.html for relevant contacts.

Comment 22

Average Monthly Concentration Reporting: Footnote 4 in Part I.A states that "in calculating and reporting the average monthly concentration when the pollutant is not detected, assign zero to the non-detected sample result if the pollutant was not detected for all monitoring periods in the prior 12 months. If the pollutant was detected in at least one monitoring period in the prior twelve months, then assign each non-detected sample result a value that is equal to one half of the minimum level of detection for the purposes of calculating averages." Based on this, if one sample is found to exceed a level, then there is a monthly average violation. However, for certain parameters, all other samples that are measured as non-detect would then need to be given the designation of half the detection limit. This would then cause 12 violations rather than one. This would also skew the annual average for certain parameters, and would effectively result in reporting concentrations which were not actually detected in qualified laboratory analysis.

In addition, requiring the City to revise data values from past time periods where non-detect results must be revised due to a later detection, makes calculating the results and management of the data extremely complex. The City likely could not document how the monthly average is calculated in a straightforward way, if it changes from month to month. Automating the calculation procedure would also likely be impossible.

Request: The City requests that Footnote 4 be deleted from the Draft Permit.

Response 22

EPA agrees that footnote 4 should be removed from the Final Permit to avoid any compliance issues raised based on non-detected sampling results. Additionally, EPA has added the following language to footnote 3 for clarification in calculating averages:

For reporting an average based on a mix of values detected and not detected, assign a value of "0" to all non-detects for that reporting period and report the average of all the results.

Comment 23

Part I.E.1 of the Draft Permit requires that "The Permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices." Although the City has and will continue to develop and enforce local limits, it objects to the use of the term that it will "ensure" compliance.

Request: The City requests that any requirement to "ensure" compliance other than developing and enforcing local limits be deleted from the Draft Permit; this can be done simply by deleting the last phase of the sentence.

Response 23

The City does not specify its precise objection to the use of the term "ensure compliance" in connection with the City's NPDES permit. EPA agrees that Haverhill is not affirmatively required by the terms of Part I.E to do anything beyond developing and enforcing local limits. This represents EPA's binding interpretation of the permit. In fact, the City explicitly acknowledges that it develops and enforces local limits, as required by the terms of the permit, and will continue to do so. No changes have been made to the Final Permit

Comment 24

Part I.D of the Draft Permit requires that "to maintain compliance with the terms and conditions of this permit, the Permittee and Co-permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works it owns and operates, as defined in Part II.E.1 of this permit." The City presently operates pursuant to an Emergency Response Plan approved by MassDEP that provides for backup power for the City's pump stations. Backup power for the pump stations is provided through the use of permanent and portable generators and/or contracts to pump wastewater directly by third-party waste haulers when necessary. Alternate power at the WPAF provides for operation of the primary systems at the WPAF except for the aeration tanks. However, as part of the Collection System Improvement Plan being implemented by the City, the City will be adding full backup power to the WPAF in the future.

Request: The City requests that EPA and MassDEP acknowledge that the City's implementation of its Generator Emergency Procedure provides adequate alternate power in compliance with the terms of the Draft Permit and implantation of full alternate power pursuant to the schedule provided for in the City's Capital Improvement Plan and the Consent Decree complies with any requirement to implement backup power.

Response 24

Part I.D of the Permit requires the Permittee and Co-permittee to provide alternative power sufficient to operate the portion of the publicly owned treatment works it owns and operates. EPA notes that this was also a requirement in the 2008 Permit. EPA notes that the Generator Emergency Procedure may comply with this permit condition until such time that full backup power is installed, so long as this near-term procedure is adequate to operate the POTW. However, the comment notes that alternate power provides for operation of the primary systems but is insufficient to operate the aeration tanks. EPA notes that this is not in accordance with the permit condition and must be addressed.

While the City's Emergency Response Plan (to respond to SSO events) was conditionally approved by MassDEP and EPA, Civil Action No. 166-11698-IT also required the submittal of CMOM Reports, a Long-Term CSO Control Plan, and a Comprehensive Plant Evaluation. MassDEP cited concerns about the City's pump stations, including backup power needs in their comments on the CMOM Program Assessment and Corrective Action Plan, and in comments on the City's February 2017 Integrated Plan. The City has affirmed their commitment to upgrade the backup power system at the treatment plant, and at a number of pump stations in response to agency comments. However, there has not been a formal resolution of these issues. EPA and MassDEP will continue to work with the City to address backup power issues, in the context of the Consent Decree.

Comment 25

The Draft Permit contains effluent limits for Enterococci (35 cfu/L average monthly and 276 cfu/100 ml maximum daily) and Fecal Coliform (88 MPN/100 ml average monthly and 260 MPN/100 ml maximum daily). These effluent limits are carried over from the current NPDES Permit. The City notes that the Fecal Coliform is unnecessary as generally, if the City meets the Enterococci limit, dilution will result in very, very low Fecal Coliform levels a short distance downstream. For example, if the City's daily maximum Enterococci is at the limit of 276, 100 dilutions result in "3" counts of Enterococci and should translate to below the USDA 14 MPN for shellfish. Having both effluent limits is not more protective of the river and results in increased sampling costs to the City.

Request: The City requests that EPA remove the fecal coliform limit, finding that the Enterococci limit is adequately protective.

Response 25

Although the City suggests that "generally" fecal coliform will be low, this does not fulfill EPA's legal obligation to ensure compliance with applicable water quality standards. As stated in the Fact Sheet, the fecal coliform bacteria limits are established to protect shellfishing uses in the receiving water. These requirements are found in the MA SWQSSs at 314 CMR 4.05(b)(4)a, and their inclusion in the permit as enforceable limits will ensure compliance with those standards. Enterococci bacteria limits are established to protect recreational uses and those requirements are found at 314 CMR 4.05(b)(4)b. Both effluent limits shall remain in the Final Permit.

B. Comments from Jennifer A. Pederson, Executive Director, on behalf of Massachusetts Water Works Association

Comment 26

Massachusetts Water Works Association (MWWA) is writing to offer comments on the draft National Pollutant Discharge Elimination System (NPDES) permit issued to the Town of Haverhill for their Wastewater Treatment Plant. MWWA has been engaged in discussions with the United States Environmental Protection Agency's (EPA) Region 1 office since 2008 on the issue of numeric limits on Aluminum in NPDES permits. We have been specifically focused on EPA's NPDES permit for Potable Water Treatment Facilities but feel compelled to comment on this permit given we see that EPA is proposing to require compliance with an Aluminum standard in this permit. Our comments on this draft permit will be isolated to this one issue.

We previously commented on the Towns of Hudson, Maynard, and Milford's draft permits and appreciate that the language contained in Haverhill's permit offers some flexibility to revisit the Aluminum criteria. However, we remain concerned at any limit being proposed in this permit given the recent guidance issued by EPA Headquarters with a new methodology for looking at Aluminum criteria. The limits noticed in Haverhill's permit draft permit do not acknowledge this new guidance.

MWWA has gone on record numerous times that 87 µg/L is an inappropriate standard for Aluminum in permits in the New England region. Many of the receiving waters in Massachusetts, including many high quality, pristine waterways, already have natural background levels of Aluminum that exceed the national water quality standard that is currently used as the basis for numeric permit limits. The high levels of background Aluminum in waters generally considered to be very clean suggest that the current standard is grossly inaccurate and unnecessarily overprotective.

We are concerned that EPA is moving forward with issuing any permits with Aluminum criteria given the recent adoption of new national guidance and the fact that Massachusetts intends to very shortly update its surface water quality standards to incorporate the new guidance.

As indicated in the Fact Sheet, "EPA is aware of ongoing efforts by MassDEP to soon revise the Massachusetts aluminum criteria based, at least in part, on forthcoming new EPA aluminum criteria recommendations which are expected to be finalized within the coming months. ...EPA's draft aluminum criteria recommendations indicate that the new aluminum criteria recommendations may be higher than the current recommendations. ...EPA reasonably expects its (MassDEPs) new criteria may also be higher." For this reason, we ask that EPA strike the numeric criteria for Aluminum from this permit and change it to a monitoring requirement until the state updates its surface water quality standards.

Response 26

Comment noted. See Response 2.

C. Comments from Philip D. Guerin, President & Chairman, on behalf of Massachusetts Coalition for Water Resources Stewardship:

Comment 27

On June 24, 2019, MCWRS had requested from EPA Region 1 a 90-day extension of the comment period for this draft permit. That request was denied and instead a 15-day extension was granted. Given the complexities and far-reaching impacts of this permit, MCWRS again suggests that a comment period extension of an additional 90 days would best serve the agencies and stakeholders. The additional time would allow further discussion of many issues and perhaps resolution of most. In lieu of an extension, EPA will have to reissue the draft permit as it needs to be substantially modified to remain fair, accurate and consistent.

Response 27

Comment noted. See Response 1.

Comment 28

MCWRS fully supports the comments submitted by the City of Haverhill. In particular, their request for a revised Draft permit should be heeded. As pointed out by the City, there are a number of factual inaccuracies in the draft permit including 7Q10 flows and dilution factors.

Response 28

EPA has responded to the comments submitted by the City of Haverhill in the relevant sections above. *See Responses 1 through 25.* Regarding the 7Q10 and dilution factor, see Response 15.

Comment 29

The City also makes a strong case for eliminating limits on aluminum based on recent clean sample testing rather than historic test results that were questionable for this purpose.

Response 29

Comment noted. See Response 2.

Comment 30

In addition to the City's comments, MCWRS also suggests that EPA Region 1 is missing a wonderful opportunity to advance watershed-based permitting by handling permits for Haverhill, Lowell and the Greater Lawrence Sanitary District in an isolated fashion. These three large communities are each situated on the Merrimack River within a relatively short stretch of river. They all share the same issues of wastewater treatment, CSOs and aging water infrastructure. Through new language in a revised draft permit, EPA could allow and encourage collaboration between these communities in a way that advances river improvement while minimizing fiscal impacts and duplicative work. Some form of pollution trading or similar actions which allow a community to utilize its strengths and work with a neighboring system to share costs and implement beneficial improvements would be a great step forward in NPDES permitting in New England.

Response 30

EPA appreciates the suggestion to encourage more collaboration between Permittees within the Merrimack River watershed and notes that the concurrent development of the Draft Permits for these three Permittees has certainly resulted in an increase in collaboration, efficiency and consistency. EPA welcomes more specific suggestions for how environmental benefits can be achieved in a more collaborative fashion in the future. Note that collaborative efforts are not precluded by the issuance of the permit and EPA can revisit the structure of permits, including the introduction of general permits, in future permitting cycles should collaborative efforts coalesce.

D. Comments from Betsy Reilly, Ph.D., Director of Environmental Quality Department, on behalf of Massachusetts Water Resources Authority

Comment 31

Comments on Co-Permittees

MWRA appreciates that the United States Environmental Protection Agency (EPA) has included language that provides clarity about responsibilities among the co-Permittees. However, MWRA continues to have reservations about the inclusion of municipal entities that have not applied for a permit and are not directly discharging to a water of the Commonwealth or the United States. MWRA remains concerned that the co-Permittee model is inconsistent with the intent of the Clean Water Act.

Response 31

For a discussion of the three aspects of EPA's co-permitting approach identified in the comment, please see *In re Charles River Pollution Control Dist.*, 16 EAD 623 (EAB 2015). Those specific rationales, as well as the bases identified by the Board in upholding EPA co-permittee approach, are incorporated here.

Comment 32

Comments on BOD and TSS Percent Removal

The draft permit includes a requirement to achieve 85 percent removal of BOD₅ and TSS. Pursuant to 40 C.F.R. 133.103(a), this requirement should be applied only "during dry weather" because the treatment plant serves a combined sewer system and thus may not be able to meet the percentage removal requirements established under §§133.102(a)(3) and 133.102(b)(3), or §§133.105(a)(3) and 133.105(b). During wet weather the Nine Minimum Controls requirement to maximize flow to the treatment facility, conflicts with a percent removal requirement. MWRA recommends adding a footnote such as the following:

The permittee's treatment facility will maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand during dry weather. Dry weather is defined as any calendar day on which there is less than 0.1 inch of rain and no snow melt. The percent removal shall be calculated as a monthly average using the influent and effluent BOD₅ and TSS values collected during dry weather days.

Response 32

See Response 20.

Comment 33

Comments on Phosphorus

The draft permit does not include a limit for phosphorus; however, MWRA disagrees with EPA's "reasonable potential" analysis in the Fact Sheet relating to phosphorus.

Massachusetts Water Quality Standards include a narrative standard for nutrients. There is no Gold Book¹² criterion for phosphorus in freshwater. In fact, the Gold Book outlines, "No national criterion is presented for phosphate phosphorus for the control of eutrophication." Nor has Massachusetts established either a loading allocation such as an approved TMDL, or site-specific criteria, for the Merrimack River for phosphorus.

The Gold Book, as noted above, explicitly does not recommend a criterion for phosphorus in fresh water. However, the following statement in the Fact Sheet is used to support the phosphorus values used for the reasonable potential analysis:

EPA's 1986 Quality Criteria for Water (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir. 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir.

The Fact Sheet erroneously uses values mentioned in one (1973) literature citation in the Gold Book, ignoring the remainder of the text, and uses those numbers as though they were approved water quality criteria or standards. Such use is inappropriate.

The Clean Water Act requires states to develop TMDLs where numeric criteria are not available or where required to restore impaired waters. EPA's web site¹³ on TMDLs notes:

The TMDL process is important for improving water quality because it serves as a link in the chain between water quality standards and implementation of control actions designed to attain those standards.

Furthermore, once a TMDL is approved the state must allocate pollutant loads equitably to contributing point and nonpoint sources, before permit limits can be set based on the TMDL. Although the TMDL process is time-consuming, it requires public input and allows for scientific review. Therefore, EPA cannot apply arbitrary criteria that have not gone through a review and public participation process. The statement in the Fact Sheet "In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus" has no legal basis.

¹² <https://www.epa.gov/sites/production/files/2018-10/documents/quality-criteria-water-1986.pdf>

¹³ <https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls>

The draft permit further cites the *Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV* (EPA December 2000). MWRA notes that the Foreword to this document states:

This document presents EPA's nutrient criteria for Rivers and Streams in Nutrient Ecoregion XIV. These criteria provide EPA's recommendations to States and authorized Tribes for use in establishing their water quality standards consistent with section 303(c) of CWA. Under section 303(c) of the CWA, States and authorized Tribes have the primary responsibility for adopting water quality standards as State or Tribal law or regulation. The standards must contain scientifically defensible water quality criteria that are protective of designated uses. **EPA's recommended section 304(a) criteria are not laws or regulations** – they are guidance that States and Tribes may use as a starting point for the criteria for their water quality standards. (*emphasis added*)

Response 33

The commenter begins by questioning the use of the Gold Book in setting phosphorus limits. As stated in the Fact Sheet (at 23), the Massachusetts Water Quality Standards ("MA WQS") contain a narrative criterion for phosphorus. *See* 314 CMR 4.05(5)(c). Until the State adopts numeric criteria, EPA must derive phosphorus limits that are protective of the State's narrative water quality standards by translating those standards based on the best information available at the time of permit issuance.

In the course of deriving protective phosphorus effluent limits that would meet the narrative phosphorus criterion, the Region looked to a variety of sources, including the Gold Book, Ecoregional Nutrient Criteria (*Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV* (EPA December 2000) and Nutrient Criteria Guidance (*Nutrient Criteria Technical Guidance Manual: Rivers and Streams, July 2000*). These constitute information published under CWA § 304(a) and were used as *guidance* to interpret the State's narrative criterion for nutrients and not as substitutes for state water quality criteria. The Region's use of the Gold Book and other relevant materials published under Section 304(a) to develop a numeric phosphorus limit sufficiently stringent to achieve the narrative nutrient criterion is consistent with applicable NPDES regulations. When deriving a numeric limit to implement a narrative water quality criterion, EPA is authorized (40 C.F.R. § 122.44(d)(1)(vi)(B)) to: "Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under Section 304(a) of the CWA, supplemented where necessary by other relevant information." EPA also relied on 40 C.F.R. § 122.44(d)(1)(vi)(A) in arriving at its determination, which provides EPA the ability to derive an instream target based on relevant information that will protect the designated use.

EPA recognizes that the Gold Book does not contain a phosphorus criterion *per se*, but instead presents a "rationale to support such a criterion." Gold Book at 240. The guidance document goes on to recommend in-stream phosphorus concentrations of 0.05 mg/L in any stream entering a lake or reservoir, 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within the lake or reservoir.

Consistent with the guidance documents cited by the commenter, EPA relied on these values as information relevant to the translation of the Commonwealth's narrative nutrient and nutrient-related criteria. EPA evaluated these values and methodological approaches and included them in the total mix of information, from which it ultimately derived a protective instream target, which fell within a range of available targets, set against a backdrop of scientific uncertainty. EPA did not apply them as binding criteria and may refine the target in future permitting cycles based on all the information in the record before it at the time of permitting. EPA did not select the most stringent available instream target available to it from the peer-reviewed literature in the administrative record, which it was fully authorized to do, and instead opted as a policy matter to measure receiving water response during the permit term and reevaluate the need for a limit, in future permitting cycles after assessing receiving water response. EPA reserves the right to revisit this judgment.

Neither the CWA nor EPA regulations require that a TMDL, or its equivalent, be completed before a water quality-based limit may be included in an NPDES permit.¹⁴ Rather, water quality-based effluent limitations in NPDES permits must be "consistent with the assumptions and requirements of any *available* [emphasis added] wasteload allocation." 40 C.F.R. § 122.44(d)(1)(vii)(B). *Id.* Thus, an approved TMDL is not a precondition to the issuance of an NPDES permit for discharges to an impaired waterway. *Id.* This interpretation is consistent with the preamble to 40 C.F.R. § 122.44(d)(1), which expressly outlines the relationship between subsections 122.44(d)(1)(vi) (i.e., procedures for implementing narrative criteria), and (d)(1)(vii):

The final point about paragraph (vi) is that in the majority of cases where paragraph (vi) applies waste load allocations and total maximum daily loads will not be available for the pollutant of concern. Nonetheless, any effluent limit derived under paragraph (vi) must satisfy the requirements of paragraph (vii). Paragraph (vii) requires that all water quality-based effluent limitations comply with "appropriate water quality standards," and be consistent with "available" waste load allocations. Thus for the purposes of complying with paragraph (vii), where a wasteload allocation is unavailable, effluent limits derived under paragraph (vi) must comply with narrative water quality criteria and other applicable water quality standards.

See 54 Fed. Reg. 23,868, 23,876 (June 2, 1989). If a TMDL is completed and approved by EPA, the effluent limitation in any subsequently issued NPDES permit must be consistent with the wasteload allocation assigned to the facility. In the meantime, relevant regulations require that EPA develop water quality based effluent limitations based on the existing applicable water quality standard in order to ensure that the permit complies with the EPA regulations requiring permits to include requirements "necessary to achieve

¹⁴ *See, e.g.*, 43 FR 60662, 60664 (December 28, 1978) ("EPA does not consider the establishment of TMDL's as essential to setting of water quality based effluent limits. Development of TMDL's pursuant to section 303(d) is not a necessary prerequisite to adoption or enforcement of water quality standards, and therefore, will not determine the validity of existing, revised or new water quality standards.")

water quality standards” (40 C.F.R. § 122.44(d)(1)) and limits “derived from, and [that comply] with” water quality standards (§ 122.44(d)(1)(vii)). These requirements implement Clean Water Act section 301(b)(1)(C), which mandates inclusion of “any more stringent limitation, including those necessary to meet water quality standards” in NPDES permits. *See In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 604-05 (EAB 2010) (expressly rejecting the idea that the permitting authority cannot proceed to determine permit effluent limits where a TMDL has yet to be established), *aff’d*, 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013).

Comment 34

Comments on Nitrogen

The draft permit requires monitoring of total nitrogen in the effluent. The Fact Sheet (section 5.1.9.1) asserts that estuarine portions of the Merrimack River have “elevated” nitrogen and chlorophyll ‘a’ levels, which can be related. The Fact Sheet goes on to describe observed levels of nitrogen and chlorophyll ‘a’ in the estuarine portion of the river, and then states “most of these results are outside the range typically found in healthy estuaries in Massachusetts”. However, the citation given as a basis for that assertion is a study of *southeastern* Massachusetts estuaries, which are very different in their sensitivity to nitrogen loading from the colder, deeper, macrotidal, better-flushed estuaries north of Cape Cod. For example, Boston Harbor total nitrogen ranges from 0.15 to 0.99 mg/L while chlorophyll ‘a’ ranges from 0.13 to 68 µg/L (surface samples, collected biweekly year-round, throughout the estuary, 2014-2018)¹⁵. These ranges, from the now-healthy Boston Harbor, are similar to those cited for the brackish portions of the Merrimack River.

Although monitoring of effluent nitrogen is likely not onerous, MWRA cautions that the Fact Sheet does not adequately justify a concern about nitrogen loading to the Merrimack River. Establishing whether the receiving water, or the downstream estuary, is impaired because of nitrogen loading, is not the responsibility of NPDES permittees. In addition, as for phosphorus, the appropriate next step for addressing any such impairment would be development of an approved TMDL.

Response 34

EPA concurs that more information is necessary to comprehensively assess the impact of nitrogen loadings in the Merrimack River watershed, because it will result in a more effective permitting regime, should limits prove to be necessary. EPA explains its approach to permitting for TN more fully in Response 59 below. Over the course of the next permit term, EPA expects to gather a variety of effluent and ambient data from various permittees and other entities. Although EPA agrees that the decision to impose an effluent limitation for a pollutant of concern upon finding reasonable potential is the obligation of EPA, the commenter’s suggestion that wastewater dischargers may not be subject to monitoring or sampling requirements imposed for the purpose of determining the quality of the waters that receive their pollutant discharges, and the need to control

¹⁵ http://www.mwra.state.ma.us/harbor/html/wq_data.htm

those pollutant discharges, is without foundation in the Act. To the contrary, it is expressly contemplated by NPDES regulations and is supported by case law.

EPA frequently includes monitoring requirements in a permit with the objective of using the data to determine the need for a limit in a subsequent permit, and is authorized to do so under the Act and implementing regulations. The data collected during this permit cycle in conjunction with other water quality data will be used by EPA in the development of a subsequent permit.

See Response 33 regarding TMDL development.

Comment 35

Comments on Footnote 4

It is concerning that in Footnote 4 results are reported differently based on other results. Results should always stand on their own; their values should not depend on other results collected later. What is the rationale for the time period of 12 months? Why is the Permittee to use half the detection limit? It is also not clear that if a result in month 12 is a detect, then do all the nondetects in the previous 11 months get retroactive values of half the detection limit, or is it just any other nondetected result in month 12? There is no logical or scientific rationale for arbitrarily changing values of results.

As a practical matter, conditioning data values on whether all measurements in some past time period were nondetects, makes calculating the results and management of the data extremely complex. It would be difficult for the permittee to document how the monthly average is calculated in a straightforward way, if it changes from month to month. Automating the calculation procedure may become impossible. It also makes the reported results unusable for examining trends. MWRA also does not understand why Footnote 4 only applies to the average monthly effluent limits and not the average weekly or maximum daily limits. EPA should be consistent in how nondetects are treated, both within this footnote and between Footnotes 3 and 4.

MWRA recommends that non-detect results continue to be assigned a value of '0' as is the current practice according to the most recent available instructions for completing a discharge monitoring report (DMR) in EPA Region 1, the NPDES Permit Program Instructions For the Discharge Monitoring Report Forms (DMRs) Report Year 2010, (EPA January 2010). In this document, Permittees are instructed to substitute '0' for any non-detect results prior to averaging or reporting results on the DMR.

Response 35

See Response 22.

Comment 36

Comments on Footnote 6

MWRA recommends that EPA include the following bypass language in Haverhill's draft NPDES permit as they did in Springfield's draft NPDES permit (MA0101613): "A bypass of secondary treatment is allowed when wet weather influent flow exceeds the wet weather capacity of the secondary treatment." Wastewater treatment plants are designed and constructed with the understanding that, at times, primary-treated-only wastewater will be blended with secondary treated flows and disinfected, provided that the final blended effluent meets secondary permit limits. This practice allows the POTW to maximize flow to the treatment plant from its combined collection system, which may be subject to large fluctuations in flow during wet weather, to minimize combined sewer overflows (CSOs), consistent with EPA policy and regulation.

Additionally, it is unclear why the permit states that a bypass of secondary treatment is subject to the requirements of Part II.B.4.c (prior notice/24-hour reporting). The permit should clarify that Part II.B.4.c applies only when flow bypasses secondary treatment at flows less than the secondary process limit. Thus, the permit should clarify that, for plant flows greater than the secondary process limit that do not cause violations of numerical permit limits or endanger health or the environment, 24-hour reporting of blending is not required.

EPA should also clarify that discharges from CSO outfalls during wet weather are not bypasses of secondary treatment.

Response 36

EPA's response to comments concerning footnote 5 (footnote 6 in the Draft Permit) and the conditions in the permit which relate to bypasses of secondary treatment are found in Responses 3 and 4.

EPA's response to comments concerning footnote 5 (footnote 6 in the Draft Permit) and the conditions in the permit which relate to bypasses of secondary treatment are found in Responses 3 and 4.

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and draft language on that permit, which has not yet been finalized.

The distinction between CSOs and bypasses of secondary treatment are clearly established in Part I.A. of the National CSO Control Policy, 59 Fed. Reg. 18688, which defines a CSO as "a discharge from a combined sewer system at a point prior to the POTW Treatment Plant," and at 40 C.F.R. § 122.41(m) which defines a bypass as "the intentional diversion of waste streams from any portion of a treatment facility". *See also* 40 C.F.R. § 403.3(r) (defining "POTW Treatment Plant" as "that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste.").

Notice requirements in Part II.B.4.c incorporate required regulatory language at 40 C.F.R. § 122.41(m)(3). Regarding bypasses which do not require notice, Part II.B.4.c., pursuant to 40 C.F.R. § 122.41(m)(2), clearly states that bypasses which do not “cause effluent limitations to be exceeded” and are “essential for maintenance to assure efficient operation” are not subject to the sub-section (c) notice provisions.

Comment 37

Comment on Footnote 8

MWRA recommends that instead of a rigid 45 or 15 minute simulated chlorine contact time based on plant flow versus design flow, the simulated chlorine contact time should be calculated based on the plant flow at the time of sample collection. To accurately reflect what is happening in the treatment process at the time of collection, samples should be held in a dark environment for a period of time equal to the amount of time required for wastewater to pass between the point of collection and the outfall.

Response 37

EPA agrees that the simulated chlorine contact time should be calculated based on the plant flow at the time of sample collection because this results in a more accurate representation of conditions at end of pipe. Therefore, EPA agrees that samples should be held in a dark environment for a period of time equal to the amount of time required for wastewater to pass between the point of collection and the outfall, but at no time shall the holding time exceed 45 minutes. The Final Permit has been updated accordingly.

Comment 38

Comment on Footnote 9

EPA should clarify if it means for Enterococci and fecal coliform samples to be tested concurrently with total residual chlorine after a simulated chlorine contact time.

Response 38

EPA clarifies that the same holding time may be applied to the total residual chlorine, enterococci and fecal coliform samples. See Response 37. This will allow all samples to represent the effluent at the end of pipe.

Comment 39

Comments on Footnote 13

It is unclear whether EPA is eliminating the submittal of separate, quarterly DMRs for Whole Effluent Toxicity testing. Due to the time necessary to complete the toxicity test report, particularly for chronic tests, it will not usually be the case that results are available by the 15th of the following month. If EPA intends for the Permittee to submit quarterly toxicity DMRs, MWRA suggests that the language below be modified:

The complete report for each toxicity test shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test should be changed to:

The complete report for each toxicity test shall be submitted by the last day of the month following the completion of the test. The results are due by February 28, May 31, August 31, and November 30.

If EPA intends for the quarterly toxicity results to be submitted on the same monthly DMR form as the other results for the reporting month, the permit should clarify what NODI code should be used for data not yet available, and that the permittee should resubmit the DMR with the toxicity data and report once they become available. It should also clarify that the updated DMR will not be considered late, provided that the non-toxicity results were submitted by the 15th of the month.

Response 39

First, EPA clarifies that the Draft Permit does not require the submittal of separate, quarterly DMRs for WET tests.

Second, EPA agrees that the requirement to submit results with the “monthly DMR submittal immediately following completion of the test” could result in a report being due before it is available. However, EPA does not agree with the proposed alternative because of the technical challenges involving EPA’s NetDMR and ICIS systems that may be associated with consistent submittal of late WET test data. Rather, to account for the processing time of each WET test, EPA has revised the language to allow for the WET results to be reported on the “second monthly DMR submittal following the completion of the test.”

Comment 40

Comments on Unauthorized Discharges

Part I.B.2 is not consistent with Part II.D.1.e.(1) (Standard Conditions, 24-hour reporting) of the draft permit, nor with 314 CMR 3.19 (20)(e). Part II.D.1.e.(1) requires verbal reporting of any noncompliance which may endanger health or the environment within 24 hours from the time the Permittee becomes aware of the circumstances. A written report containing discharge volumes is then required within five days of the time the Permittee becomes aware of the circumstances.

It is generally infeasible to provide accurate information on the timing and volume of unauthorized discharges such as sanitary sewer overflows within 24 hours. The Permittee should be given adequate time to analyze, process, and validate data to report accurate information. Specifically, the permit should allow five days to report the “description of the discharge; estimated volume; the period of noncompliance, including exact dates and times; and, if the noncompliance has not been corrected, the anticipated time it is expected to continue.” If the 24-hour notification requirement is retained as written, the unauthorized discharge information is very likely to undergo some corrections between the 24-hour notification and the five-day report. It is not clear in the permit how the Permittee is to handle any discrepancies.

EPA should also clarify how long it intends for this information to be available on the Permittee’s website.

Response 40

The two provisions cited by the commenter are distinct requirements in the Draft Permit, which were included to achieve different objectives.

Part I.B.2. requires public notification of an unauthorized discharge (i.e., plant upset, sanitary sewer overflow (“SSO”), etc.), so that appropriate precautions can be taken to minimize exposure risks by the public associated with recreating on or near receiving waters where untreated wastewater may be present. Part I.B.2 is properly included, as stated in the Fact Sheet, to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment pursuant to authority established in 40 C.F.R. § 122.41(d) (“*Duty to mitigate*. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.”). It is, in EPA’s judgment, reasonable to expeditiously disclose these occurrences, even subject to correction, given the potential risks to the public, so that it may be put on notice and assess the risks prior to utilizing the resource. Although EPA must strike a balance between notifying the public in a timely manner and ensuring the accuracy of the notification, a five-day delay would likely lead to members of the public recreating or otherwise utilizing the resource while unaware of potential risks. It is unclear to EPA why any discrepancies between an initial public notification may not be addressed by simply by providing updated information on the website. As for the commenter’s concern about reporting “volumes,” Part I.B.2. requires only reporting of the *estimated volume* of any unauthorized discharge, not an exact volume. The commenter does not specify why Part I.B.2 is inconsistent with 314 CMR 3.19(20)(e).

Part II.D.1.(e.), on the other hand, requires that notification be provided to the permitting authority(ies) of *any noncompliance* which may endanger health or the environment. Moreover, reporting of discharge volumes is generally not required by Part II.D.1(e) except for noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events.

Additionally, EPA has modified the language in Part I.B.2 to require public notification within 24 hours of *becoming aware* of any unauthorized discharge impacting a surface water or the public, which is consistent with the language set forth in Part II.D.1.(e). See Response 5.

Finally, EPA agrees that clarification regarding the length of time notifications of unauthorized discharges are to remain on the permittee’s website is needed, and therefore, Part I.B.2. of the Final Permit specifies that such notifications shall remain posted for a minimum of 12 months. This will provide a reasonable record and history that the public may consult when assessing the frequency of unauthorized discharges in particular water bodies in assessing whether to utilize them.

Comment 41

Comments on Combined Sewer Overflows

The permit should allow flexibility in choosing the most effective way to “characterize CSO impacts and the efficacy of CSO controls” (Nine Minimum Controls [NMC] #9), as EPA did in the Public Notification Requirements for Combined Sewer Overflows to the Great Lakes Basin final rule promulgated in the Federal Register on January 8, 2018. MWRA’s experience is that due to the complexity of CSO regulator structures, and the difficulty in maintaining sensors in the harsh environment of a combined sewer, it is usually impossible to accurately measure and report CSO discharges (i.e., “Duration (hours) of discharge; Volume (gallons) of discharge” for “each combined sewer outfall” [pg. 18; Part I.F.3.e]) over a short period of time. These measurements in the field -- as opposed to those at CSO treatment facilities -- require extensive, expensive metering at each outfall and regulator. Once the collected meter data are determined (through careful technical assessment) to be valid, the data must then undergo post-processing and expert interpretation, as well as validation against other information such as system performance records and model output, to determine reasonably accurate activation start and stop times and discharge volumes. MWRA has seen that, even with good meter “data,” the discharge durations and volumes determined from the data are often suspect or unreliable.

CSO discharge estimates can change between an immediate or short-term notification, and annual reporting. To avoid concern about “discrepancies,” the permit should state that discharge estimates in initial notifications are “preliminary and subject to change with new information or additional evaluation.”

As an alternative to direct measurement, MWRA encourages EPA to also allow modeling, precipitation-based estimates and other analytical tools to estimate CSO discharge duration and volume as EPA does in the Public Notification Plan section of the draft permit (Part I.F.3.g.(2)). Under the right conditions, modeling can be an effective method for determining the occurrence and characteristics of CSOs.

MWRA is providing rapid public notification of CSO discharges at CSO treatment facilities. These facilities are typically the most active CSOs in their respective receiving waters, and can be accurately measured and verified compared to stand-alone CSO regulator structures.

Public notification plan

The draft permit provides 180 days to develop a public notification plan (CSO Nine Minimum Controls #8). Because the infrastructure to provide notification needs to be put in place, MWRA recommends that additional time, at least 36 months from the effective date of the permit, be allowed for implementation of the plan.

MWRA also recommends that EPA include a schedule for implementation and a listing of potentially affected entities in the plan. EPA should also provide guidance to the Permittee on how to determine which downstream communities might be potentially affected entities.

Initial notification

MWRA supports the draft permit language that allows the use of “monitoring, modeling, or other means” to determine that a CSO discharge has occurred.

It is important to keep in mind that notifying the public of CSO discharges into a receiving water body that is affected by many wet weather (and possibly dry weather) sources of pathogens is likely to give the false impression that the water is safe for contact recreation when CSOs are not discharging; or, that the water is safe if there has not been a CSO activation in a storm or a series of wet weather events. The risk to public health is influenced by a number of factors, not just CSO discharges. A requirement for rapid public notification of CSO discharges may give the erroneous impression that the receiving waters are safe during and immediately after storms in the absence of CSO discharges.

More helpful to the public and protective of public health would be a much more general short-term notification of the potential for one or more CSO discharges to a receiving water segments (along with stormwater and other discharges). The risk to public health is best determined and communicated by public health authorities rather than wastewater Permittees. MWRA recommends that the language be changed to provide a general notification that because large storms can trigger CSOs, public health officials recommend avoiding contact with water bodies during rainstorms and for 48 hours afterwards, as there may be increased health risks due to bacteria or other pollutants associated with urban stormwater runoff and CSO discharges.

Follow-up notification

The draft permit requires a supplemental notification within 24 hours after becoming aware of the end of a CSO discharge. This supplemental notification would confirm whether the CSO did indeed discharge and provide the start and stop times. MWRA believes it is infeasible to provide accurate information on the timing of each activation within 24 hours at any CSO outfall other than those from staffed CSO treatment facilities. As discussed above, the Permittee should be given adequate time to analyze, process and validate data (or model results) to report accurate information. Furthermore, it is not clear what public health benefit would be obtained by such a notification. The potential benefit of these notifications is not immediate public health protection but as input to longer term CSO public policy and control efforts, which are adequately provided for with the other CSO discharge reporting requirements in the draft permit.

MWRA recommends that the follow-up notification requirement be eliminated.

Response 41

The Final Rule Public Notification for CSOs to the Great Lakes implements Section 425 of the Consolidated Appropriations Act of 2016, which requires EPA to work with the Great Lakes States to establish public notification requirements for combined sewer discharges to the Great Lakes. It does not apply to dischargers outside of the area.

EPA maintains its position that the objective of the monitoring required under the nine minimum controls is to provide data that can be used to evaluate compliance with the technology based effluent limitations for CSOs that are set forth in the permit (i.e., the

nine minimum controls), the efficacy of the CSO controls that have been implemented and to validate the assumptions set forth in the permittee's LTCP, as well as to facilitate the CSO notification program. It has been EPA and MassDEP's experience that direct measurement provides the most accurate indication of CSO activations. Therefore, the collection of data through direct measurement is essential for the regulatory agencies to conduct these evaluations. Forms of direct measurement *may* include, but are not limited to, metering of flows at each CSO outfall. Alternate approaches could include, for example, extrapolating the flow volume discharged through a CSO outfall from measurements of water levels in the interceptor sewers (or some other measured metric of a known quantity from which the flow volume could be derived). The requirement to monitor CSO discharges through direct measurement remains unchanged in the Final Permit.

EPA understands that additional time may be needed to validate and refine CSO data that is collected each month through direct measurement, and as such, the permit requires CSO discharge data to be submitted with the Annual Report that is submitted in accordance with Part I.F.4. of the permit.

EPA agrees that CSO discharge estimates may change between the time the initial and supplemental notifications are provided. This understanding is reflected in Part I.F.3.e.(2) (initial notification) of the Draft Permit, which states that "Initial notification of a *probable* CSO activation shall be provided...". This language has been maintained in the Final Permit.

Public notification plan

With respect to the commenter's request that the deadline for the submittal and implementation of the public notification plan be extended to 36 months, the deadline for complying with this requirement remains unchanged in the Final Permit. Neither the commenter nor the permittee have identified any specific impediments to meeting this requirement within the time frame established in the permit.

With respect to the commenter's concerns regarding the requirement to provide notification to "potentially affected parties", upon further consideration, EPA has determined that the public notification requirements in the Draft Permit, including the requirements in Part I.F.3.g. to provide the general public with notification of CSO discharges and the requirements in Part I.H.2. and Part I.H.3. to notify downstream community water systems and the Massachusetts Division of Marine Fisheries of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure that has the potential to violate permit limits or affect the quality of the water to be withdrawn for drinking water purposes, are inclusive of all categories of the public, and the references to "affected entities" and "affected parties" have been removed from Part I.F.3.g. of the Final Permit.

Initial Notification

EPA disagrees with the commenter's statement that notifying the public of the cessation of a CSO discharge will provide a false sense of security that the water is safe. While water quality may be negatively impacted by non-CSO sources, including stormwater runoff, providing timely notice of CSO discharges may allow the public to take steps to reduce potential exposure to pathogens associated with untreated wastewater. EPA does, however, encourage the permittee to provide the public with information relative to the impacts of wet weather, including those due to stormwater and other non-CSO sources, on the quality of the receiving water as well as to public health. Additionally, EPA supports the collaboration between the permittee and public health entities in communicating the health risks presented by untreated discharges of combined stormwater and wastewater.

Follow-up Notification

EPA disagrees with the commenter's suggestion that confirmation of a CSO discharge can only be made if the discharge is from a CSO treatment facility. The concerns expressed by the commenter regarding the time needed to analyze, process and validate data (or model results) to report accurate information appear to be more appropriately directed towards the collection and reporting of flow volumes, as opposed to confirming whether a CSO discharge occurred.

The intent of the supplemental notification, in conjunction with the initial notification, is to provide the public with timely information relative to CSO discharges so that appropriate precautions can be taken to minimize exposure risks associated with recreating on or near receiving waters into which CSO discharges occur. These public notification requirements are reasonable given the uses of the receiving water and remain unchanged in the Final Permit.

Comment 42

Comments on Special Conditions

Condition I.H.3 requires monitoring of phosphorus (see also Footnote 10.) There is no justification for this requirement provided in the Fact Sheet. It is not clear what the purpose is or how the proposed study design is going to meet that purpose. The classic reference for designing marine pollution monitoring programs, *Managing Troubled Waters*¹⁶, emphasizes the importance of starting with clear monitoring questions in order to assure that the study design will generate data that will answer those questions.

If there were a rationale provided for the study, reviewers could make more relevant comments on the appropriateness of the study design. What is the reason for sampling in dry weather? How will tidal aliasing be avoided?

¹⁶ National Research Council. 1990. *Managing Troubled Waters: The Role of Marine Environmental Monitoring*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/1439>.

Furthermore, the requirement to collect monthly samples in dry weather is infeasible. The permittee may schedule sampling during an expected dry day, only to have the weather change. If there are no dry days during a month, how should the lack of data be reported on the DMR?

If this ambient monitoring condition is retained, EPA should clarify that Part I.H.3 refers to monitoring for total phosphorus only.

Response 42

EPA clarifies that the purpose of the ambient monitoring requirement for phosphorus is to track background conditions over the life of the permit. These data can be used in the next permit reissuance to ensure that appropriate limits are in place to protect water quality standards.

The comment questions the condition of dry weather and tidal aliasing. Monitoring during dry weather is required because the critical condition for the impact of phosphorus loading from the Haverhill discharge is during periods of low flow. If it is raining, then the conditions of the river are likely impacted by stormwater and are not representative of critical dry weather conditions.

During the summer of 2017 EPA deployed datasondes in the lower Merrimack River. The farthest station upstream was just above the POTW located in Merrimac, MA. The maximum salinity at this location was 3.4 ppt so tidal aliasing would not be expected to cause any issues upstream of Merrimac, MA. Since Merrimac, MA is downstream of Haverhill, EPA does not believe that tidal aliasing will be an issue for Haverhill.

EPA disagrees that monitoring during dry weather is infeasible. However, if there are no dry days during a month, the Permittee may report a No Data Indicator (“NODI”) code “V” (Weather Related) for that month.

Part I.H.3 applies to total phosphorus monitoring only.

Comment 43

Typographic errors

Fact sheet, page 1

The Massachusetts municipality of Groveland is a co-permittee for specific activities required in I.D, I.E., and I.F. of the Draft Permit...

MWRA believes this reference should be to I.B, I.C, and I.D.

Fact sheet page 7

Section 2.2.4, Reasonable Potential Analysis, at the end of the second paragraph, “...which are then compared to the applicable WQC” should say “...which are then compared to the applicable

WQS", since effluent concentrations are compared to state water quality *standards*, not recommended water quality *criteria*.

Fact sheet page 23

The units of chlorophyll 'a' in the CDM report cited, are µg/L (parts per million), not "ppt" (parts per thousand or parts per trillion, not clear from the context).

Page 30 of the Fact Sheet, section 5.5

"Specific permit conditions have also been included in Part I.C. and I.D. of the Draft Permit."

The reference here should be to Part I.B and I.C.

Page 32 of Fact Sheet – There appears to be text missing before the paragraph that begins "This initial notification ...", that would describe the rationale and content of the initial notification.

Page 36 of Fact Sheet:

- The Draft Permit proposes to limit BOD, TSS, pH, total residual chlorine, *E. coli*, fecal coliform, total aluminum and total phosphorus; [instead, it should read]
- The Draft Permit proposes to limit BOD, TSS, pH, total residual chlorine, *Enterococcus*, fecal coliform, and total aluminum;

Response 43

EPA agrees with the typographical edits (except the one on page 7) and they are noted here for the record.

EPA does not agree that page 7 of the Fact Sheet should say WQS (i.e., water quality standards) instead of WQC (i.e., water quality criteria). EPA notes that WQC are a part of WQS and a reasonable potential analysis specifically compares pollutant concentrations to the WQC.

Finally, while the Fact Sheet has not been updated because it was developed to support the Draft Permit, EPA is updating the administrative record by including the "missing text" on page 32 of the Fact Sheet below:

To reflect advances in technologies, the Draft Permit includes more specific public notification implementation level requirements to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. The Draft Permit requires the Permittee to develop a public notification plan to fulfill NMC #8. As part of this plan, notification shall be provided electronically to any interested party, and a posting made on the permittee's website, of a probable CSO activation. EPA is proposing a requirement in the revised Draft Permit for the Permittee to provide initial notification to the public of a probable CSO

discharge no later than four hours after becoming aware of a likely CSO discharge. This notification may be based on modeling estimates of discharge(s) based on rainfall (or other predictive modeling methodologies) rather than on actual CSO discharge measurements.

E. Comments from Gene Porter, Chair, on behalf of Lower Merrimack River Local Advisory Committee

Comment 44

I am the Chair of New Hampshire's Lower Merrimack River Local Advisory Committee (LMRLAC) and have a vested interest in the EPA's efforts to upgrade the permits for all wastewater treatment facilities that discharge untreated effluent to the River. Although the two major permits in New Hampshire are not scheduled for review until next year, the precedent set by the Massachusetts permits will be important.

The more people who feel confident in using the River for recreational purposes, the more people who will have a vested interest in helping ensure that environmental safeguards are observed and strengthened. To that end, greater transparency of the limits of any pollution threats will increase public confidence in the safety of the River's waters.

My major comment applies to all three Massachusetts permits. I trust you will transmit these comments to the appropriate officials before the 7/23 deadline.

CSO discharges pose a significant public health risk to the recreational users of the River. It is therefore gratifying to see that the draft EPA permits specifically call out the threat to recreational use as a major reason for strengthening the CSO reporting requirements from only downstream drinking water suppliers but to now include the general public. Nevertheless, the draft language requiring such reporting is needlessly vague and needs to be strengthened to at least reflect more explicitly current "best practices" for the notification of potentially affected parties of the emergence of an imminent public health hazard. To that end, the existing draft public notification language:

- **Public Notification of CSO discharges:** within 4 hours of becoming aware of a probable CSO discharge, notice shall be provided to the public and downstream communities; supplemental notification confirming the occurrence of a CSO discharge, the CSO outfall number, and the start and stop times of the discharge shall be provided within 24 hours of the termination of any CSO discharge; an annual report shall be posted, summarizing annual CSO activation information.

should be strengthened, not just by allowing electronic notification, but by mandating that each municipality that employs CSOs establish an internet-based public alerting system that allows interested downstream individuals and recreation oriented entities, such as marinas, to subscribe to a free alerting service that conveys the foregoing information in a timely fashion. Such "list-serve" systems have already been established in many municipalities for disseminating similar time-sensitive information and would not pose an undue burden if CSO reports were to be added to the menu.

Response 44

EPA sought to strike a balance in fashioning the draft permit requirements for the minimum implementation level for NMC #8 (Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts). As contemplated by NMC #8, the public notification plan affords the permittee reasonable flexibility in implementing the plan to account for facility-specific concerns (e.g., logistics in obtaining and disseminating information in a timely and efficient manner given funding and staffing resources), while at the same time ensuring that important health and safety information is disseminated to the public in a timely manner. *Combined Sewer Overflow, Guidance For Nine Minimum Controls*, at 9-1 (EPA 1995) ("The measure selected should be the most cost-effective measure that provides reasonable assurance that the affected public is informed in a timely manner.") The communication strategy described in the above comment is one approach that may be employed to satisfy the Public Notification requirement, and the permittee is encouraged to consider this as it develops its public notification plan in accordance with Part I.F.g.3. of the Final Permit.

Comment 45

There is also a larger issue involving the need for at least rudimentary predictions of the geographic and temporal boundaries of the likely plume of contaminated water under various river flow conditions. The absence of a rigorous river sampling program immediately after major CSO events in each location precludes the establishment of reliable models that permit prediction of the limits of the public health threat. The resulting general advice to "stay away from the river for 48 hours" may be excessively conservative. It would seem to me appropriate that the EPA include such sampling and modeling requirements in the emerging NPDES permits. Users of the River would benefit greatly.

Response 45

EPA encourages collaboration between stakeholders, including community-based organizations, MassDEP and the Permittee to develop and implement an extensive ambient monitoring program, such as the one requested in the above comment.

F. Comments from Heather McMann, Executive Director, on behalf of Groundwork Lawrence

Comment 46

We strongly support the inclusion of a total aluminum average monthly limit of 87 µg/L. Given updates made to EPA's aluminum criteria in 2018 and MassDEP's ongoing efforts to update their own Surface Water Quality Standards to include this updated metric, we appreciate the inclusion of the three-year compliance schedule in the permit. We urge EPA to strongly consider the significant ecological implications of excess aluminum on critical species functions, particularly respiratory functions, as they evaluate compliance with this metric.

Response 46

Comment noted. See Response 2.

Comment 47

We strongly recommend the inclusion of a total phosphorous average monthly limit. The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the Merrimack River, Segment MA84A-04 and the Spicket River, Segment MA84A-10 as Massachusetts Category 5 Waters, with the Merrimack River impaired for total phosphorous. Given these significant impairments, we strongly disagree that there is not reasonable potential for the discharges to contribute to an exceedance of water quality standards for phosphorous. We are particularly concerned that the only data used for the phosphorous reasonable potential analysis was HWPFAF's sampling in April 2019. We strongly encourage EPA to conduct additional sampling for this criterion before making a final decision on this metric.

Response 47

As described on pages 13 and 14 of the Fact Sheet, only segments of the Merrimack River upstream of the Haverhill WPAF discharge are impaired for phosphorus. The Merrimack River is not impaired for phosphorus in the segment receiving Haverhill's discharge.

EPA notes that a reasonable potential analysis was conducted based on all available data which indicated that a phosphorus limit is not necessary in this permit reissuance. This analysis was conducted using all available data to characterize the ambient and effluent phosphorus concentrations. For effluent data, the only available data that represents current conditions was from April 2019.

Finally, EPA included a requirement for the Permittee to monitor both ambient and effluent phosphorus concentrations during this permit cycle so that EPA can conduct another reasonable potential analysis when this permit is reissued again. EPA does not believe it would be prudent to delay issuance of the permit in order to collect additional data, given that the permit has long since expired. Additionally, such sampling will demand additional resources and time, and will forestall the other improvements associated with the permit, while there is no indication that it will change the permitting outcome for total phosphorus.

Comment 48

We support the addition of total Kjeldahl nitrogen, total nitrate/nitrite, and total nitrogen weekly (April - October) and monthly (November - March) monitoring and reporting, but we recommend that EPA proposes a total nitrogen average monthly limit for the permit. As noted in the Fact Sheet, nitrogen levels in the Merrimack River estuary are higher than is acceptable for a healthy nearshore coastal system. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicates elevated total nitrogen and chlorophyll 'a' levels. In addition, in 2012, the Gulf of Maine Council on the Marine Environment reported that the Merrimack was the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine. We disagree that any additional reasonable potential analyses need to be conducted for this criterion. EPA should move forward with establishing a limit total nitrogen, but at a minimum should include in the current permit that a future permit may require nitrogen limits and/or process optimization at the facility.

Response 48

See Responses 18 and 59.

The commenter suggests that EPA “at a minimum should include in the current permit that a future permit may require nitrogen limits and/or process optimization at the facility.” EPA agrees with this comment and has already indicated in the Fact Sheet (at 23) that “The Agencies recommend the Town factor in treatment methods to reduce nitrogen in the effluent for any planned upgrades at the treatment plant, as nitrogen limits may be included in subsequent permits.”

Comment 49

We support the inclusion of additional characteristics beyond LC50 and C-NOEC for Whole Effluent Toxicity (WET) testing in the permit, but recommend that EPA includes specific time frames for quarterly monitoring to occur, similar to the schedule established in the Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613).

Response 49

EPA notes that footnote 12 of the Haverhill Draft Permit states: “Toxicity test samples shall be collected, and tests completed, during the same weeks in January, April, July and October.” This level of specificity in the timing of the WET tests is already consistent with the Draft Permit for the Springfield WWTF referenced in the comment. Therefore, no change has been made to the Final Permit.

Comment 50

We support the inclusion of public notifications for unauthorized discharges on a publicly available website, but we recommend that notices be made to the public within two hours rather than within 24 hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. 24 hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River.

Response 50

Requiring the permittee to provide notification within 24 hours of becoming aware of an unauthorized discharge is appropriate given the nature of such discharges, specifically, because they are unpredictable and not amenable to modeling, as are, for example, discharges from CSOs, which would provide information for providing notifications on a shorter timeframe. EPA must balance the need to notify the public in a timely way while also accounting for administrative, staffing and logistical constraints with which a permittee may be confronted. EPA also needs to ensure that there is sufficient time for a permittee to preliminarily assess any data and ensure that the information disclosed is reasonably accurate. Finally, EPA observes that the condition mandates disclosure *within* 24 hours; it is likely as a practical matter that, in many if not most cases, notification will occur before that time, given that elected officials and municipal employees have an interest in providing timely information to protect the health and welfare of the City’s citizens.

Comment 51

We support the inclusion of a collection system mapping and collection system operation and maintenance plan to ensure that the most accurate data is utilized in system review.

Response 51

Comment noted.

Comment 52

We support the inclusion of inspections and reporting for CSO structures in the permit, but we recommend that the frequency of inspections be increased from once per month to twice per month to ensure that adequate assessments are occurring and fix and address problems as they arise.

Response 52

The inspection frequency of one per month that was included in Part I.F.2.b. of the Draft Permit was carried forward from the 2008 Permit. EPA does not have any specific basis to conclude that the existing inspection frequency is inadequate, or that more frequent inspections would materially impact the operational integrity of the CSO structures. The Permittee is required to document any necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. EPA is unaware of any issues that have occurred with this frequency. Should EPA become aware of specific facts relating to this issue, it may revisit its determination. Part I.F.2.b. of the Final Permit remains unchanged from the Draft Permit.

Comment 53

We support the inclusion of additional signage at CSO locations, but recommend that the permit makes signage in additional languages a requirement rather than a suggestion. We recommend that signage be posted in both English and Spanish, as according to the most recent U.S. Census data from July 1, 2018, 21% of the population of Lawrence identifies as Hispanic or Latino and according to Data USA, 16% of the populations speaks Spanish or Spanish Creole as their first-language.

Response 53

EPA agrees with this comment and has updated Part I.F.3.f. of the Final Permit to require Spanish and English signage, or the addition of a universal wet weather sewage discharge symbol to existing signs.

Comment 54

We support the inclusion of initial notifications for CSO discharges, but we recommend that the notice is required within two hours rather than four hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. Four hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River. In addition, the most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes a requirement that initial notifications are made by no later than two hours. Despite the fact that discharges across multiple treatment

facilities to the Merrimack River collectively number in the hundreds and total more than 800 million gallons of sewage annually, the Merrimack River is still used heavily for recreation. From kayak and boat clubs to spin-rod and fly fishermen, the River supports a substantial recreation community. To provide these individuals with adequate notice and maintain consistency across CSO permits, we strongly recommend that this requirement is corrected to two hours.

Response 54

The 2-hour initial notification requirement that was proposed in the Draft Permit for the Springfield Wastewater Treatment Facility, which has not yet been finalized, was based, in part, on existing requirements in the State of Connecticut, including EPA's obligation to consider and protect the water quality of a downstream state, the proximity of the discharges to the downstream State of Connecticut and the time of travel from the Springfield Water and Sewer Commission's CSOs to the state border (approximately 2 hours). See 33 U.S.C. § 1341(a)(2). Again, EPA must balance the need to notify the public in a timely way while also accounting for administrative, staffing and logistical constraints with which a permittee may be confronted. EPA also must ensure that there is sufficient time for a permittee to preliminarily assess any data and ensure that the information disclosed is reasonably accurate. EPA will evaluate the protectiveness of this condition over the course of the permit term, and based on that information, will make a record-based judgment on whether more rapid dissemination of this information is warranted. Therefore, the Final Permit has not been changed.

Comment 55

We support the inclusion of supplemental notifications for CSO discharges, but we recommend that the notifications also include total volume discharged from the CSO. The most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes this information as a requirement for reported information. In the interest of maintaining consistency across CSO permits and ensuring accurate data is presented to the public, we strongly recommend that the total volume discharged from the CSO is included in the notifications as well.

Response 55

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and draft language on that permit. That permit has not yet been finalized and remains subject to change.

In consideration of the time needed for the validation, post-processing and interpretation of CSO data, EPA has determined that requiring the reporting of CSO discharge volumes in the annual notification is more appropriate than the supplemental notification. See also Response 41 regarding the time needed to verify and process CSO data to ensure the reporting of accurate information. The annual notification requirements in the Final Permit remain unchanged.

Comment 56

We ask that the permit Fact Sheet be updated to include the following information: (1) the most recent annual volume reports for CSO discharges at each outfall, (2) the most recent version of GLSD's Long Term Control Plan and the status of improvements made in accordance with the plan thus far, and (3) summaries of reductions or eliminations of CSO's that have been made in accordance with the plan. It is extremely difficult to evaluate the impacts on receiving waters without complete information on the discharges.

Response 56

Fact sheets are not modified following the public comment period, however, an annual CSO discharge summary from 2014-2018 (as submitted by the permittee with their Annual CSO Reports) is provided in **Attachment A** to this document and is hereby incorporated into the administrative record. Inquiries into Long Term Control Plans may be directed to EPA's Enforcement and Compliance Assurance Division ("ECAD"). Please see https://rl-gis-web.ri.epa.gov/ecad/enforcement_comp.html for relevant contacts.

G. Comments from Julia Blatt, Executive Director, on behalf of Massachusetts River Alliance & Caitlin Peale Sloan, Senior Attorney, on behalf of Conservation Law Foundation:

Comment 57

We strongly support the inclusion of a total aluminum average monthly limit of 87 µg/L. Given updates made to EPA's aluminum criteria in 2018 and MassDEP's ongoing efforts to update their own Surface Water Quality Standards to include this updated metric, we appreciate the inclusion of the three-year compliance schedule in the permit. We urge EPA to strongly consider the significant ecological implications of excess aluminum on critical species functions, particularly respiratory functions, as they evaluate compliance with this metric.

Response 57

Comment noted. See Response 2.

Comment 58

We strongly recommend the inclusion of a total phosphorous average monthly limit. The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the Merrimack River, Segment MA84A-04 and the Spicket River, Segment MA84A-10 as Massachusetts Category 5 Waters, with the Merrimack River impaired for total phosphorous. Given these significant impairments, we strongly disagree that there is not reasonable potential for the discharges to contribute to an exceedance of water quality standards for phosphorous. We are particularly concerned that the only data used for the phosphorous reasonable potential analysis was HWPAF's sampling in April 2019. We strongly encourage EPA to conduct additional sampling for this criterion before making a final decision on this metric.

Response 58

EPA notes that, although current data did not trigger reasonable potential or support the need of a permit limit in order to protect water quality standards, the Permittee is required to conduct ambient and effluent phosphorus monitoring throughout the life of the permit. Therefore, EPA will have a robust dataset to conduct another reasonable potential analysis in the next permit reissuance.

Comment 59

We support the addition of total Kjeldahl nitrogen, total nitrate/nitrite, and total nitrogen weekly (April - October) and monthly (November - March) monitoring and reporting, but we recommend that EPA proposes a total nitrogen average monthly limit for the permit. As noted in the Fact Sheet, nitrogen levels in the Merrimack River estuary are higher than is acceptable for a healthy nearshore coastal system. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicates elevated total nitrogen and chlorophyll 'a' levels. In addition, in 2012, the Gulf of Maine Council on the Marine Environment reported that the Merrimack was the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine. We disagree that any additional reasonable potential analyses need to be conducted for this criterion. Delaying reductions in nutrients is not a viable strategy as noted by the EAB: "Due to the tendency of nutrients to recycle once released into the system and contribute to future impairment, delay in addressing point source nutrient contributions will only compound the challenges in restoring receiving waters" (Upper Blackstone Water Pollution Abatement District, Determination on Remand, EAB, 7/7/2010, p. 3). EPA should move forward with establishing a total nitrogen limit. In addition, as EPA moves forward with other CSO NPDES permits on the Merrimack, we remind EPA that discharge permitting on the Merrimack River in both Massachusetts and New Hampshire should be consistent and ensure that the concentrations and loads of nutrients discharged in the river system as whole will prevent the creation of eutrophic conditions both in the river and in the lower Merrimack estuary.

Response 59

As EPA evaluated both phosphorus and nitrogen impacts from this discharge, it notes that there is an inherent distinction in the approach to ensure the attainment of water quality standards and evaluate eutrophic impacts from each nutrient. Typically, phosphorus is the limiting nutrient in freshwaters, such as the Merrimack River immediately downstream of this discharge. Nitrogen is the limiting nutrient much farther downstream in saltwater segments near the mouth of the Merrimack River. This distinction plays an important role in EPA's evaluation of whether the discharge has the reasonable potential to cause or contribute to an excursion of water quality standards with respect to each nutrient specifically.

As EPA evaluated both phosphorus and nitrogen impacts from this discharge, it notes that there is an inherent distinction in the approach to ensure the attainment of water quality standards and evaluate eutrophic impacts from each nutrient. Typically, phosphorus is the limiting nutrient in freshwaters, such as the Merrimack River immediately downstream of this discharge. Nitrogen is the limiting nutrient in downstream estuarine segments. This distinction plays an important role in EPA's evaluation of whether the discharge has the

reasonable potential to cause or contribute to an excursion of water quality standards with respect to each nutrient specifically.

For phosphorus, the impacted waterbody is immediately downstream and impacts can be measured or predicted with relative ease using all available site-specific ambient and effluent data. For nitrogen, on the other hand, impacts to segments much farther downstream may be impacted by a variety of sources including over 40 POTWs in the Merrimack River watershed as well as significant non-point source loads. The evaluation of watershed-wide nitrogen loading and far-field impacts of such nitrogen loading lends itself to a much larger-scale evaluation and approach to establishing reasonable potential and setting permit limits to ensure water quality standards are met.

EPA has the discretion to apply a site-specific analysis and establish nitrogen permit limits for any individual discharger based on information available at the time of permit reissuance; it need not base that decision on the collection of a comprehensive watershed-wide data set. The reasonable potential standard governing the imposition of effluent limitations in NPDES requires, after all, certainty only beyond a “mere possibility” of a water quality impact. However, the Agency has chosen at this juncture to evaluate nitrogen impacts, including those from this discharger, on a watershed-wide basis. This permit cycle will be focused on gathering information to characterize watershed loading and evaluate far-field impacts so that the next permitting cycle can more definitively determine whether such loadings have the reasonable potential to cause or contribute to a violation of water quality standards and, if necessary, establish appropriate nitrogen limits throughout the watershed to ensure that water quality standards are met. EPA concurs with the commenter’s view that permitting should follow a consistent approach in both New Hampshire and Massachusetts, which it believes counsels as a matter of policy, in favor of collecting a more comprehensive dataset on which to base limits, in order to lay the groundwork for consensus between upstream and downstream states, which will generate more sustainable and impactful water quality-based solutions to any problems that are found. Again, should EPA’s preferred approach fail to cohere prior to the next permit cycle, EPA is authorized to move forward on a more disaggregated, individualized basis with information that is reasonably available at the time concerning a particular discharge.

EPA fully agrees with the comment that delaying nutrient reductions is not a viable strategy when confronted with a waterbody impaired for nitrogen such as in the Upper Blackstone permit. However, more data are necessary at this time to better understand the impact of nitrogen loading in the Merrimack River and the Gulf of Maine. A model, sophisticated statistical analyses and years of water quality information were available for Blackstone and Upper Narragansett Bay; although EPA requires a far lower quantum of proof prior to making a permitting decision, EPA remains cognizant of the fact that, at this time, the Merrimack River is not well characterized for nitrogen impacts. *See, e.g., “National Estuarine Eutrophication Assessment, Effects of Nutrient Enrichment in the Nation’s Estuaries” (National Oceanic and Atmospheric Administration) at 18 https://ian.umces.edu/neea/pdfs/eutro_report.pdf.* Although this report is dated, EPA is not aware of any comprehensive assessment that has been conducted and made available

since its publication. It is in the interests of the watershed and all stakeholders for EPA to make as informed a decision as possible on this critically important issue, in order for EPA to select an appropriate permit regime (*i.e.*, one that will be effective on a watershed-wide basis should EPA find permit limits to be necessary and that will entail a systematic and efficient expenditure of federal, state and municipal resources toward that end).

Comment 60

We support the inclusion of additional characteristics beyond LC50 and C-NOEC for Whole Effluent Toxicity (WET) testing in the permit, but recommend that EPA includes specific time frames for quarterly monitoring, similar to the schedule established in the Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613).

Response 60

See Response 49.

Comment 61

We support the inclusion of public notifications for unauthorized discharges on a publicly available website, but we strongly recommend that notices be made to the public within two hours rather than within 24 hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. Twenty-four hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River and will not protect public health.

Response 61

See Response 50.

Comment 62

We support the inclusion of a collection system mapping and collection system operation and maintenance plan to ensure that the most accurate data is utilized in system review.

Response 62

Comment noted.

Comment 63

We support the inclusion of inspections and reporting for CSO structures in the permit, but we recommend that the frequency of inspections be increased from once per month to twice per month to ensure that adequate assessments are occurring and operators are able to fix and address problems as they arise.

Response 63

See Response 52.

Comment 64

We support the inclusion of additional signage at CSO locations, but recommend that the permit make signage in additional languages a requirement rather than a suggestion. We recommend that signage be posted in both English and Spanish, as according to the most recent U.S. Census data from July 1, 2018, 21% of the population of Haverhill identifies as Hispanic or Latino and according to Data USA, 16% of the populations speaks Spanish or Spanish Creole as their first language.

Response 64

See Response 53.

Comment 65

We support the inclusion of initial notifications for CSO discharges, but we recommend that the notice is required within two hours rather than four hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, members of the public cannot take the necessary precautions to protect their health. Four hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River. We note that the most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes a requirement that initial notifications are made by no later than two hours. Despite the fact that discharges across multiple treatment facilities to the Merrimack River collectively number in the hundreds and total more than 800 million gallons of sewage annually, the Merrimack River is still used heavily for recreation. From kayak and boat clubs to spin-rod and fly fishermen, the River supports a substantial recreation community. To provide these individuals with adequate notice and maintain consistency across CSO permits, we strongly recommend that this requirement is corrected to two hours.

Response 65

See Response 54.

Comment 66

We support the inclusion of supplemental notifications for CSO discharges, but we recommend that the notifications also include total volume discharged from the CSO. The most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes this information as a requirement for reported information. In the interest of maintaining consistency across CSO permits and ensuring accurate data is presented to the public, we strongly recommend that the total volume discharged from the CSO is included in the notifications as well.

Response 66

See Response 55.

Comment 67

We ask that the permit Fact Sheet be updated to include the following information: (1) the most recent annual volume reports for CSO discharges at each outfall, (2) the most recent version of HWPAP's Long Term Control Plan and the status of improvements made in accordance with the

plan thus far, and (3) summaries of reductions or eliminations of CSO's that have been made in accordance with the plan. It is extremely difficult to evaluate the impacts on receiving waters without complete information on the discharges.

Response 67

See Response 56.

H. Comments from Peter Severance, River Merrimack

Comment 68

I. Ambient Monitoring.

a. I would suggest that Chlorophyll-a be added to the list of parameters for ambient monitoring. This will add valuable information concerning response to / need for additional nutrient controls.

b. I would further suggest that ambient monitoring (all monitoring?) be conducted with sufficient quality and controls so as to be useful and acceptable per the quality standards of the the MassDEP Watershed Planning Program. This would entail a couple of additional things:

1. Writing of a detailed QAPP per the Watershed Planning Program standards.
2. Having all testing of grab samples be conducted by labs which hold current Massachusetts certification for the analytical methods specified in the QAPP.

Response 68

EPA anticipates that water quality monitoring for chlorophyll-a and other nutrient response variables will be conducted in the coming years by EPA, MassDEP and other stakeholders. EPA has been contacted by Massachusetts Coastal Zone Management and the Mass Bays Program about monitoring needs in the lower Merrimack. This has been a poorly monitored area for a long time but it is now receiving more attention from local watershed groups and the state related to increased monitoring needs. Therefore, EPA has not added additional parameters to the ambient monitoring requirement in the Final Permit but notes that such parameters may be required in a future permit.

EPA recommends that any sampling and analysis performed should be conducted consistent with a state-approved quality assurance project plan ("QAPP") developed for the monitoring work to ensure inclusion in MassDEP's assessment program. Additionally, EPA approved analytical methods found in 40 C.F.R. Part 136 must be employed by any state-certified lab.

Comment 69

You probably would be implementing controls on Total Nitrogen if MassDEP had a finding that the lower Merrimack was IMPAIRED for nutrients according to their current standards.

Unfortunately, they have never looked at the estuary.

I believe that the monitoring the USACE and EPA has done for the past 5 or 6 years shows clear need for this, taking into consideration several things we know about the estuary.

a. As outlined in the draft permits, the levels of Total nitrogen in the lower Merrimack are clearly very high.

b. Taking a look at the 45 observations from USACE (2014-2016) and EPA (2017) data for Chlorophyll-a -- for stations downstream from Rivermile 7 (the estuary proper). Consider them non-parametric perspective, in light of the 2018 Massachusetts CALM guidance:

51% exceeded the 10 mg/L "impaired" standard

22% met the ≤ 5 mg/L "healthy" standard

27% fell in between the "impaired" and "healthy" standards

78% exceeded the "healthy" standard.

c. Historical records make the case for long-standing nutrient impairment of the estuary:

1. NOAA and the EPA have known for decades that nitrogen in the Merrimack estuary is among the worst in all of Massachusetts. For example, in 1994, NOAA published data from 1989 and 1990 for the 14 estuarine systems from Cape Cod and Massachusetts Bay to Passamaquoddy Bay in Maine -- the Merrimack estuary was far and away the worst for nitrogen pollution:

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Table 4. Summary of physical and hydrological characteristics, nitrogen and phosphorus discharges, and predicted nutrient concentration statuses for estuarine systems bordering the Gulf of Maine [a]

| Estuarine System | Total Drain. Area (mi ²) | Water Surf. Area (mi ²) | Water Depth (ft) | Average Daily Freshw Inflow (10 ³ cfs) | Volume (10 ⁶ ft ³) | 1980 Pop. Density (no./mi ²) | Total Nitrogen Disch. (tons/yr) | Nitrogen Conc. & Status[b] (mg/D) | Total Phos. Disch. (tons/yr) | Phos. Conc. & Status [b] (mg/D) |
|-------------------|--------------------------------------|-------------------------------------|------------------|---|---|--|---------------------------------|-----------------------------------|------------------------------|---------------------------------|
| Passamaquoddy Bay | 3200 | 152 | 72 | 62 | 315 | 11 | 293 | 0.006L | 28 | 0.001L |
| Englishman Bay | 900 | 76 | 38 | 16 | 80 | 12 | 150 | 0.014L | 22 | 0.002L |
| Narragansett Bay | 400 | 70 | 32 | 9 | 63 | 17 | 104 | 0.016L | 11 | 0.002L |
| Blue Hill Bay | 800 | 115 | 75 | 13 | 241 | 28 | 154 | 0.016L | 35 | 0.004L |
| Penobscot Bay | 9400 | 361 | 72 | 161 | 725 | 58 | 7808 | 0.102M | 771 | 0.010M |
| Muscongus Bay | 300 | 72 | 43 | 6 | 85 | 67 | 56 | 0.013L | 16 | 0.004L |
| Sheepscot Bay | 10100 | 103 | 41 | 176 | 118 | 66 | 8745 | 0.077L | 641 | 0.006L |
| Casco Bay | 1700 | 164 | 42 | 21 | 191 | 172 | 1412 | 0.066L | 465 | 0.028M |
| Saco Bay | 1800 | 17 | 32 | 36 | 15 | 71 | 1257 | 0.057L | 193 | 0.009L |
| Great Bay | 1000 | 15 | 11 | 20 | 5 | 243 | 636 | 0.098L | 204 | 0.031M |
| Merrimack River | 5000 | 6 | 12 | 84 | 2 | 423 | 10111 | 1.021H | 1625 | 0.164H |
| Massachusetts Bay | 1200 | 364 | 77 | 29 | 786 | 2228 | 7995 | 0.216M | 4091 | 0.110H |
| Boston Bay | 700 | 69 | 26 | 18 | 50 | 2789 | N/A | N/A | N/A | N/A |
| Cape Cod Bay | 800 | 548 | 77 | 18 | 1178 | 392 | 377 | 0.026L | 187 | 0.013M |

[a] Data sources: Strategic Assessment Branch (1990); NOAA/EPA Team on Near Coastal Waters (1989).

[b] Concentration status: L = low; M = medium; H = high.

2. Decades ago, specialists on the vascular plants and algae of estuaries were studying New England estuaries and concluded that pollution was having a dramatic impact on the Merrimack. Miller (1971) included this analysis:

"Pollution is often an important limiting factor in algal distribution and abundance. A comparison of species composition of seaweeds from the Merrimack River Estuary with

that of the Hampton-Seabrook Estuary (Mathieson and Fralick, In Press) and the Great Bay Estuary Systems (Mathieson, Reynolds, and Hehre, In Press) of New Hampshire indicates a paucity of species in the Merrimack. "

- Hampton-Seabrook Estuary: 118 species
- Great Bay: 150 species
- Merrimack: 28 species

"The abundance of many Ulotrichalean green algae (e.g., Enteromorpha spp., Ulva lactuca, Ulva flexuosa subsp. paradoxa, and Monostroma sp.) typifies a polluted estuarine habitat. The latter species are not only tolerant of extremes in pollution, but to gross fluctuations in hydrographic factors. "

c. Consider the following historical notes concerning the state of eelgrass in the estuary. While it is currently present, it used to be thriving, but is likely to be impaired at present:

1. Jerome (1965) made note of a 1903 Newburyport Daily News article on clambers digging back "abundant" beds of eelgrass from Plum Island to what is now known as Ring's Island (Salisbury).
2. "Abundant growth" of eelgrass was observed in the lower Merrimack River, Plum Island Sound and the Ipswich River (Addy and Aylward, 1944).
3. By 2010 there was no eelgrass recorded in Plum Island Sound (Novak, 2012).
4. Fred Short (personal communication) observed beds of eelgrass in the Merrimack in the 1980s; however, it had disappeared in the 1990s.
5. Within the last decade, the eelgrass beds of the Merrimack were surveyed and catalogued in the Massachusetts NHESP Natural Communities inventory (MassGIS, 2016), and described as follows:

COMMUN_NAM Seagrass Community

COMMUN_RAN S3

Acres 849.231

COMMUN_DES Seagrass Communities occur on estuarine or marine flats with sand or mud substrates that are submerged by, usually, less than 2m of water at high tide.

SPECIFIC_D This example of Marine Subtidal Flats is extremely sparsely vegetated but has a rich diversity of invertebrate fauna that provide forage for many species of birds. [emphasis added]

6. Four of the nine EFH species have eelgrass mentioned in association with habitat of one or more of their life stages.

I would suggest that if there is any hope of restoring the richness of the eelgrass beds to this ~850 acres of EFH (which by the way is used by an additional 38 economically and ecologically important marine species - ELMR) the high levels of TN and resulting Chlorophyll-a in the estuary are probably the key impediment to success of that effort.

d. Macroalgae growth on the shorelines of Deer Island appears to be significant, per the photos sent with the email I forwarded to you from Dr. Mathiesson

Response 69

EPA appreciates the detailed information regarding the history of nitrogen loading and eelgrass health within the lower Merrimack River estuary. EPA agrees that this information may be useful in determining the impairment status of the estuary. MassDEP will consider this information in its next assessment of the lower Merrimack River.

As explained above, EPA plans to require nitrogen monitoring in NPDES permits throughout the Merrimack River watershed and expects monitoring for other response variables (*e.g.*, chlorophyll-a, dissolved oxygen, eelgrass) to be collected by EPA, MassDEP and other stakeholders, which will result in a comprehensive dataset on which to make systematic regulatory decisions. This approach will ensure EPA has sufficiently representative effluent and ambient data to make effective permitting decisions on a watershed level, as it has done in Upper Narragansett Bay and more recently in the Taunton River Estuary/Mount Hope Bay.

Comment 70

The most abundant species of fish using the Merrimack estuary are forage fish (Jerome, 1965; ELMR) the prey species that feed the cod, the seabirds, the dolphins and whales of the Gulf of Maine and Massachusetts bay. The populations of many of the the fish using the Merrimack as a nursery – the river herring, Atlantic herring, mackerel and others – are not doing well. The list of ELMR species utilizing the estuary and their life stages is found in [this shared directory](#).¹⁷

The Atlantic States Marine Fisheries Commission is considering designating important shad and river herring spawning and nursery habitat as HAPC (January, 2019).

Response 70

Comment noted.

Comment 71

Additional Economic considerations for taking steps to restore the estuary:

- a. Jerome (1965) estimated that the estuary would support the harvest of 30,000 bushels of soft-shell clams, worth \$4,500,000 - \$6,000,000 at today's wholesale prices.
- b. Ipswich Shellfish Group is interested in farming oysters in the estuary, but not until it's cleaned up.

Response 71

Comment noted.

¹⁷ <https://drive.google.com/open?id=1RT1X3jtNTNfY57Nry8sp8AlMo9RvIEsz>

I. Comments from Christina Eckert and John Macone, on behalf of Merrimack River Watershed Council

Comment 72

We strongly support the inclusion of notification requirements for CSOs, but we encourage the permit to require notifications within 2 hours. Further, we ask that the information reported be consistent between the Lowell, GLSD and Haverhill wastewater treatment plants.

Because these discharges pose a health risk to those fishing, swimming or using the river for recreation, it's imperative to notify the public in a timely manner so they can avoid contact with the water. Currently Lowell sends out notifications almost as soon as CSOs begin, with follow-up notifications when they end. Within 24 hours, they follow up with notifications estimating the volume of effluent released. MRWC believes that Haverhill should be held to the same standard, for the health and safety of all those living downstream of a CSO.

Response 72

See Response 50 regarding 2-hour notification.

To address the commenter's concerns regarding consistency between Lowell, GLSD, and Haverhill wastewater treatment plants, the information reported relating to CSOs in the Draft and Final NPDES Permits for all three permittees is consistent. The requirement in the Draft Permit for CSO discharge volumes to be included in the Annual Notification and Annual Report is appropriate given the additional time that may be needed to validate and refine data that is collected for each discharge event.

Comment 73

MRWC recommends that the EPA includes a total phosphorous average monthly limit.

The MassDEP's Integrated List of Waters in 2014 listed the Merrimack as impaired for total phosphorous. Five years later, it is time to address this issue. Lowell's limit is 1.08 mg/L and Greater Lawrence Sanitary District is held to a limit of .53 mg/L. A similar limit should be set for Haverhill.

Response 73

See Response 47.

Comment 74

MRWC recommends that the EPA/Mass DES require an average monthly limit for total nitrate/nitrite, total nitrogen, and total Kjeldahl nitrogen.

The Merrimack's nitrogen levels are increasing. As stated above, the Merrimack is the second greatest contributor of nitrogen to the Gulf of Maine. As difficult as it is, our region must find a way to limit or eliminate these pollutants threatening priceless wildlife, not only within the Merrimack, but in the Gulf.

Response 74

See Responses 18, 48 and 59.

Attachment A – Combined Sewer Overflows Background and Annual CSO Discharge Summary 2014-2018

Haverhill Wastewater Pollution Abatement Facility (NPDES Permit No. MA0101621)

This Attachment provides background on the statutory and regulatory framework that applies to combined sewer overflows (“CSOs”). It briefly describes the Region’s approach to key permitting and enforcement issues. Finally, it provides data documenting the trends in CSO discharges at the Haverhill Wastewater Pollution Abatement Facility.

A combined sewer system (“CSS”) is a wastewater collection system owned by a state or municipality (as defined by section 502(4) of the Clean Water Act (“CWA”)) which conveys sanitary wastewaters (domestic, commercial and industrial wastewaters) and storm water through a single-pipe system to a Publicly Owned Treatment Works (“POTW”) Treatment Plant (as defined in 40 C.F.R. § 403.3(p)). A CSO is the discharge from a CSS at a point prior to the POTW Treatment Plant. CSO discharges occur when the volume of wastewater exceeds the capacity of the CSS or treatment plant (e.g., during heavy rainfall events or snowmelt). When this occurs, untreated stormwater and wastewater, discharges directly to nearby streams, rivers, and other water bodies.

Like all point sources, CSOs are subject to sections 301 and 402 of the CWA. CSOs require National Pollutant Discharge Elimination System (“NPDES”) permits, which may include technology-based and water quality-based requirements of the CWA. Additionally, where EPA is the permitting authority it must ensure that the state or authorized tribe where the CSO discharge may originate either issues a section 401 water quality certification finding compliance with existing water quality requirements or waives the certification requirement.

Further, Section 402(q) of the CWA states that: “[e]ach permit, order, or decree issued pursuant to this chapter after December 21, 2000 for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Control Policy signed by the Administrator on April 11, 1994.” The Combined Sewer Overflow Control Policy (“CSO Policy”), 59 Fed. Reg. 18688 (April 19, 1994), provides a national strategy for the control of CSOs through the NPDES program at 40 C.F.R. Part 122. The CSO Policy “presents a uniform, nationally consistent permitting approach that should ... result in the establishment of both technology-based and water quality-based requirements for all CSOs.”¹⁸

Under the CSO Policy, permittees must undertake a process to accurately characterize their CSS and CSO discharges, demonstrate implementation of the nine-minimum technology-based controls (“NMCs”), and develop long-term CSO controls plans (“LTCPs”) which evaluate alternatives for attaining compliance with the CWA, including compliance with water quality standards and protection of designated uses. All CSO permittees are required to implement the Best Available Technology Economically Achievable / Best Conventional Pollutant Control Technology (“BAT/BCT”), which at a minimum includes the NMCs, as determined on a best

¹⁸ “Combined Sewer Overflows Guidance for Permit Writers,” at 2-1 (September 1995), available at https://www.epa.gov/sites/production/files/2015-10/documents/csopermitwriters_full.pdf (“CSO Guidance for Permit Writers”)

professional judgment basis (“BPJ”) by the permitting authority. Implementation of the NMCs is achieved through specific control measures deemed most appropriate for a specific permit and necessary to satisfy the BAT/BCT requirement based on BPJ of the permit writer, considering the factors presented in 40 C.F.R. § 125.3(d).¹⁹

The CSO Policy sets out a phased approach to CSO permitting. The immediate requirement for CSO permits are: (1) immediately implement the BAT/BCT, which includes at a minimum the NMCs; (2) submit a report documenting such implementation; (3) comply with applicable WQS, no later than the date allows under the State’s WQS, “expressed in the form of a narrative limitation;” and (4) develop and submit a LTCP.²⁰ Once a permittee has developed a LTCP and selected controls necessary to achieve WQS, the CSO Policy articulates the following, among other elements, for inclusion in CSO permits: (1) requirements to implement the NMCs and (2) water quality-based effluent limits under 40 C.F.R. § 122.44(d)(1) and 122.44(k), requiring, at a minimum, numeric performance standards for the selected CSO controls.²¹

For CSO permits on the Merrimack River, EPA has and continues to require implementation of the NMCs. Development of LTCPs, on the other hand, has been and continues to be addressed as part of enforcement actions taken by Region 1’s Enforcement and Compliance Assurance Division.

EPA or the relevant state has worked with virtually every CSO community in New England to develop CSO abatement schedules to be memorialized in administrative or judicial enforcement mechanisms. As necessary, such schedules are adjusted to reflect new information and evolving financial conditions.

¹⁹ *Id.* at 3-6.

²⁰ 59 Fed. Reg. at 18696.

²¹ *Id.*

Haverhill CSO Discharges - Activations and Volume by Year

EPA notes that the data on activations and volume discharged are significantly influenced by the number and intensity of rainfall events in a given year and/or by improvements made by the permittee in measuring and reporting CSO events and volumes. This permit requires, for the first time, direct measurement of CSO flows. EPA and MassDEP have also taken various enforcement actions against WWTF permittees on the Merrimack River similarly requiring improvements in CSO monitoring and reporting. Accordingly, EPA expects the quality and accuracy of this data to continue to improve.

| Outfall | YEAR 2014 | | YEAR 2015 | | YEAR 2016 | | YEAR 2017 | | YEAR 2018 | |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|---------------|-------------|---------------|-------------|-----------------|
| | Activations | Volume (MG) | Activations | Volume (MG) | Activations | Volume (MG) | Activations | Volume (MG) | Activations | Volume (MG) |
| 013 Lower Siphon | 7 | 8.744 | 6 | 1.382 | 5 | 4.374 | 2 | 8.03 | 6 | 0.010 |
| 019 Main Street North | 0 | 0 | 0 | 0 | | | 1 | 0.011 | 1 | 0.045 |
| 021A Middle Siphon | 13 | 9.194 | 7 | 0.404 | 4 | 3.179 | 13 | 6.302 | 14 | 0.016 |
| 021B Locke Street 12" siphon | 2 | 0.065 | 0 | 0 | 1 | 0.033 | 2 | 0.047 | 2 | 0.015 |
| 021D Little River North | 38 | 2.582 | 24 | 1.178 | 33 | 0.466 | | | | |
| 021F Center Barre Orchard St | 33 | 7.797 | 19 | 2.016 | 28 | 3.975 | 25 | 6.575 | 48 | 8.752 |
| 021E Little River South | 7 | 0.025 | 4 | 0.004 | 2 | 0.138 | | | | |
| 021H Winter Hale Street | 11 | 1.258 | 10 | 0.533 | 13 | 1.457 | 22 | 2.568 | 23 | 3.276 |
| 021G Winter Street | 10 | 0.602 | 7 | 0.158 | 5 | 0.098 | 10 | 0.228 | 3 | 0.143 |
| 038 Broadway-High Street | 4 | 0.035 | 0 | 0 | 0 | 0 | | | 2 | 0.004 |
| 037 Broadway (shared outfall w-038) | 0 | 0 | 0 | 0 | | | | | 1 | 0.454 |
| 024 Upper Siphon | 10 | 7.302 | 3 | 0.124 | 4 | 3.125 | 8 | 4.366 | 9 | 5.360 |
| 032 Bradford Avenue | 14 | 1.927 | 9 | 0.466 | 7 | 1.041 | 7 | 0.443 | 5 | 0.301 |
| 034 Middlesex Street | 13 | 1.548 | 8 | 0.243 | 8 | 1.324 | 20 | 2.444 | 16 | 3.489 |
| 036 South Webster Street | 14 | 0.880 | 10 | 0.080 | 16 | 0.267 | 18 | 0.218 | 25 | 1.035 |
| 040 Bethany Avenue | 12 | 0.661 | 12 | 0.380 | 21 | 0.758 | 25 | 1.276 | 19 | 0.826 |
| 041 Chestnut Street | 13 | 0.607 | 24 | 0.920 | 14 | 0.245 | 17 | 0.23 | 18 | 0.327 |
| 042 Coe St. and Salem Regulator | 0 | 0 | 0 | 0 | 1 | 0 | | | | |
| 021M (Marginal Pump Station) | 0 | 0 | 5 | 0.201 | 20 | 0.942 | | | | |
| TOTAL | 201 | 43 | 148 | 8 | 183 | 21.432 | 178 | 30.734 | 197 | 24.03897 |

**Information for Filing an Adjudicatory Hearing Request with the Commonwealth
of Massachusetts Department of Environmental Protection**

Within thirty days of the receipt of this letter the adjudicatory hearing request should be sent to:

Docket Clerk
Office of Administrative Appeals
Department of Environmental Protection
One Winter Street, Second Floor
Boston, MA 02108

In addition, a valid check payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The hearing request to the Commonwealth will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver.

The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing filing fee for a permittee who shows that paying the fee will create an undue financial hardship. A permittee seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

August, 2006